# The Builder.

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## *Discoveries at Cyrene.**

It is said to be England's mission to evangelize the world: it certainly seems to be her mission to explore it. Year by year, her hardy and enterprising sons voluntarily relinquish the comforts of home life to do battle with suffering and death in every form and in every part of the globe, impelled by that passion which is the characteristic and inheritance of the true Anglo-Saxon stock. To the North Pole ("Are we going up that way again?" asks Sherard Osborn and his hardy crew),—to the South,—under the torrid zone,—over the wide expanse of the Sahara,—through the pestilential swamps of the West coast,—amid the trackless forests of America, the British explorer pursues his way, risking death in many forms, and enduring the extremes of heat, cold, hunger, thirst, and fatigue, animated by the desire of imparting information to the world, and consoled in his direst extremity by the thought that, whether he survive or perish, his name will be remembered by his countrymen, and counted amongst those of men who have suffered and bled for them in other fields and for other causes. Nor is he deceived in his hope for sympathy. Have we not gone forth into the wilds with Livingstone, journeyed to Mecca with Burton, and accompanied Speke and Grant to the Lake Nyanza, and imagined with them that we have discovered the source of the Nile? Yes; we have suffered and conquered with them, and have enshrined their names amongst our household gods. They are the pioneers of civilization, and point out the road to commerce. But there is another class of explorers who also deserve well of their country; who labour for it in other ways; who undergo as great hardships and run as great risks, and whose labours are crowned generally with more immediate and palpable results; we mean those who explore the sites of deserted cities, and exhume the buried wonders of art. These men are the benefactors of Art, as the others are the benefactors of Commerce: and though their names are not so often in our mouths, they will last as long as the world of art exists.

The name of Lord Elgin will be associated with the marbles of the Parthenon; that of Layard with the Assyrian sculptures; that of Newton with the Budroum marbles; and, lastly, those of Smith and Porcher with the Cyrene collection, as long as the statues they have rescued from oblivion endure.

Some amongst our readers may ask what are the Cyrene marbles? Where did they come from? How were they procured? And their ignorance is pardonable; for how are they to know anything about these valuable and interesting remains of antiquity so long as they are shut up in a shed or concealed in a cellar in the British Museum. How they were acquired and whence they came they may learn from the interesting and well-illustrated volume before us, which relates how Lieutenant (now Captain) Smith, R.E., and Lieutenant (now Commander) Porcher, R.N., being stationed at Malta, obtained leave of absence, and started, upon their own responsibility, and at their own cost, on an expedition for the purpose of exploring the cities of the Cyrenaica; and how, after meeting with success in their researches, they were assisted by her Majesty's Government, and were enabled to obtain no less than 148 pieces of sculpture,—some of them of great value,—for our national museum.

These gentlemen were not tyros in the work of exploring: Captain Smith had co-operated with Mr. Newton in the excavations at Halicarnassus and Cnidus; and Captain Porcher had dug at Utica and Carthage with Mr. Davis; and both had no doubt imbibed that passion for exploration which a spice of danger and a certainty of adventure so greatly heighten. They also possessed the necessary qualifications for the task they undertook; which consist, in the first place, of a knowledge of the language of the country visited. Interpreters and dragomen are not always to be depended upon, as they are too apt to conceal the truth amidst the flowers of their eloquence, and to contrive that sundry coins shall stick to the measure with which they mete out justice between their masters and the natives. The next most important requisite to success in excavating is a ready perception of which are the best spots for digging in, acquired by practice and resulting from a sufficient acquaintance with architectural forms to enable a person to judge of the sites of temples and other public buildings. A third qualification, also essential, is a knowledge of the modes of working, and an acquaintance with the mechanical appliances necessary for moving large blocks of stone. Firmness and justice in dealing with the natives are also indispensable. To these qualifications may be added those of an experience in photographing and a talent for drawing. This last gift has, in the present instance, proved a great acquisition, as it has enabled Captain Porcher to give a series of views which make us quite familiar with Cyrene, and its rock-cut sepulchres, its gushing fountain, its ruined temples, and its well-wooded *wadys*.

The book opens with a short history of "the parts of Lybia about Cyrene." It appears that in the year 631 B.C., Battus the Stammerer, finding, we presume, that the impediment in his speech prevented his getting on in his own country, left the island of Thera, now Santorin, one of the most southern of the islands of the Archipelago, and took ship, with a goodly company of followers, for the continent of Africa. At first he took possession of an island, but eventually settled on the main land. Finding that the higher he got in that warm climate the more comfortable he found himself, he chose the edge of a plateau about 2,000 ft. above the level of the sea, and about 12 miles distant from it, as the site of the capital of his colony. Here there was a magnificent source of water, near which he built a temple, dedicating it to Apollo, whom he believed to be his patron. King Battus I. was succeeded by other kings until the year 450 B.C., when the regal form of government was exchanged for a republic, which, going the way of all other republics, fell a prey to internal strife, and became subject to the neighbouring sovereigns of Egypt, the Ptolemies, in the year 321 B.C. These monarchs rebuilt the five cities of the Pentapolis,—as the colony was then termed,—and gave them the names of Cyrene, Apollonia, Ptolemais, Teuchira, and Hesperis. The last king of the race left the kingdom by will, in the year 95 B.C., to the Romans, who called it the province of Cyrenaica. Up to the time of Trajan it prospered, but afterwards fell into decay, and was eventually conquered by Chosroës, king of Persia; and at last it fell into the hands of the Arabs in the seventh century, who have encamped upon its ruins ever since—fortunately for us and for our national Museum, for the Arabs are the best preservers of antiquities: they have no occasion for houses, as they are dwellers in tents; consequently they neither destroy the temples for building materials, nor do they burn the statues for lime, as some nations calling themselves more civilized have done. The Cyrenaica, then, offered a fine field to explorers, for it had not been ransacked like the provinces of Asia—indeed, few travellers had passed through it; those who had, had not opportunities for excavating.

Lieutenants Smith and Porcher accordingly left Malta, armed with a firman, for Benghazi, touching at Tripoli on the way, in the month of November, 1860. At Benghazi they assembled a caravan consisting of ten camels, riding-horses for themselves, and a few negro workmen, and started for Grennah, the site of Cyrene, on December 14th. Owing to the slippery state of the roads, they were ten days in reaching the spot, a distance of 150 miles from Benghazi. The last hours of their journey were occupied in the ascent to the plateau on which Cyrene is situate. The edge of the plateau—which is 70 miles or 80 miles in length, by many miles in breadth—is intersected by numerous ravines, which run through two other lower terraces, and descend to the sea, which is 12 miles to the north of the upper plateau.

Cyrene stands on the edge of this table-land, occupying two ridges and an intervening valley. Its necropolis, or city of the dead, which in all Greek cities is much more extensive than was the city of the living, occupies the whole north side of the range covering the hills from base to summit. The table-land has no trees, but the *wadys* are filled with the foliage of the myrtle and oleander. The fountain of Apollo rises between the two hills. "Here," writes Captain Smith, "a copious fountain of delicious water issues from a cavity in the face of the cliff, from which a small aqueduct, cut in the rock, runs along the side of the road for several miles. Close to the fountain it was formerly hollowed out into a series of troughs, so arranged that, by the overflow of each passing to the next, they were always full,—a slight indication of the attention paid by the Cyrenians to the wants of the horses for which their country was so celebrated. One can easily fancy the citizens of Cyrene halting in their evening drives at this beautiful spot to water their horses, and to enjoy the extensive view of the magnificent scenery around. On one hand is the high and rugged face of the cliff, overhanging the ravine below; on the other the steep hill of Cyrene rising from the beautiful valley of verdure at its base; while, far below, lies the varied surface of the plateau, stretching away for miles to the dark blue line of sea beyond."

The explorers took up their quarters in an empty tomb, cut in the face of the rock,—the most comfortable place of abode in a hot country, as it is cool in summer and warm in winter,—and devoted their time to an examination of the neighbouring sepulchres. These were of every form and variety of plan and elevation. Some had porticoes, others pilasters, chiefly of the Doric order; and others were decorated with polychrome, both inside and outside, or ornamented with busts and other sculpture, like that in the accompanying woodcut.* Captain Porcher gives no less than fifteen plates of illustrations

* "History of the recent Discoveries at Cyrene, made during an Expedition to the Cyrenaica, in 1860-61, under the Auspices of her Majesty's Government." By Captain R. Murdoch Smith, R.E., and Commander E. A. Porcher, R.N. London: Day & Sons. 1864.

* See p. 100.

of these tombs, many of them being plans, some of which, being of the ordinary type, might well have been omitted. Finding that all these tombs had been opened and ransacked, probably centuries ago, the explorers wisely turned their attention to the more important remains of the city itself.

On New Year's Day, 1861, they abandoned the tombs and attacked the temples. There were no less than five mounds upon the site of the city, which indicated the position of as many temples. One of these was inclosed by a peribolus wall and a massive colonnade of the Doric order. The temple itself, like all other temples in Cyrene, was also Doric, but of small dimensions. The plan of it, as well as that of the Temple of Apollo, both of which were taken by Captain Smith, were unfortunately lost. There was a cella, but no peristyle. A pronaos, with two Doric columns between two half-columns engaged, in the cella wall. It is to be regretted that the authors give no drawing of the peribolus wall and gateway. Their excavations on this site were rewarded by the "find" of a noble statue of Bacchus, perfect with the exception of the right arm.

Encouraged by the result of this essay, they next turned their attention to a mound in front of the fountain, which they rightly conjectured to be that of the Temple of Apollo. The information they give about the architecture of this temple, as well as of the one just mentioned, is extremely meagre; but we must remember that they did not go to Cyrene for the purpose of examining the architectural remains, but for the discovery of sculpture: they tell us that it was unusually long in proportion to its breadth, and that its entrance was at the east end, which, notwithstanding the receipt of Vitruvius, was the case in most Greek temples—in that of Minerva Polias, at Priene; that of Apollo Branchidæ, near Miletus; and in that of Bacchus, at Teos. After some days spent in digging, the suave smile of the statue of Apollo the Lute-player greeted them from under the ground. His head was detached from his body, which was broken into no less than one hundred and twenty-one fragments. These being carefully collected, there was built up from them the magnificent statue now in, or rather outside, the British Museum.

These statues of Bacchus and Apollo were with great labour moved from their places on sledges, "foot by foot," and buried or walled up to secure them from injury. Hitherto the expenses of the expedition had been defrayed by the explorers themselves, but now they had good grounds for applying for assistance to the Government. This they did in February, and pending the arrival of a reply, when their labourers left them for the harvest, which begins here in April, they determined to visit the other cities of the Pentapolis. Of these Ptolemais appears to be the most perfect, and the most interesting. There are slight remains of several public buildings, and the walls of the city can be traced throughout. "The great gateway, in the western wall, is still standing, and is remarkable for the excellence of its masonry. It is built of massive ashlar work, without mortar, the stone of which is laid in alternate courses of headers and stretchers, like the rustic work of the day." This gateway, of which we give an illustration,* is built after the usual system of defence employed in Greek fortifications, being protected by a pylon on each side, as at Assos, and in some of the cities of the Peloponnesus.

Soon after their return from this excursion, the ship *Assurance* arrived with letters, informing them that the trustees of the British Museum had granted 100*l.* towards defraying expenses. For an account of the ingenious method, invented by Captain Smith, for conveying the statues to the coast, and of their subsequent embarkation, we must refer our readers to the book itself. Suffice it to say, that the *Assurance* sailed for England with her valuable freight just a month after her arrival. Immediately after her departure, excavations were commenced upon the site of the largest temple of the five: though the results were not satisfactory as regards sculptures, several remarkable architectural features were brought to light. The temple was of unusually large dimensions, the cella measuring 169 ft. 6 in. by 58 ft. externally. There were eight columns at the ends and seventeen at the sides. The pronaos had two and the posticum *three* columns *in antis*. The columns were 6 ft. in diameter, and the capitals measured 9 ft. across the abacus; they stood 14 ft. 5 in. apart, and 18 ft. from the wall of the cella. In the interior there were two ranges of small Corinthian columns, standing on pedestals, which supported the roof of the hypæthron, as at the Temple of Apollo Branchidæ, and the Temple of Apollo Epicurus, at Bassæ.

There is a remarkable similarity between this temple and the Parthenon. Both were peripteral, hypæthral, octastyle, and of the Doric order; both had seventeen columns on the flanks, and the dimensions were very similar; that at Cyrene, as measured by Captain Porcher, being 223·5 ft. long by 100 ft. in breadth; whilst the Parthenon was 228·7 ft. in length by 100·8 ft. in breadth.

There is no outer step to the peristyle shown in the plan, though there must of necessity have been one, if not three, and most probably one to the pronaos and one to the posticum. It would have made the plan and the plans of other temples clearer if the walls and columns had been shaded, and the dimensions figured in the places where they were taken.

Nine days after the departure of the *Assurance* the *Scourge* arrived at the port of Cyrene, with the welcome intelligence that the trustees of the British Museum had granted an additional 500*l.* for the expedition. This sum enabled them to complete the excavation of the Temple of Apollo, and also dig up a smaller temple situate near the stadium—in plan similar to the Temple of Bacchus. This was peripteral, measuring 150 ft. by 100 ft. on the upper step of peristyle. The columns were 4 ft. 5 in. in diameter, and the cella-floor was raised two steps above that of the peristyle. No indications of the positions of the columns of the pronaos or posticum were discovered. They also excavated a small temple to the south of the temple of Bacchus, and on a similar plan to it, having in the pronaos two columns between engaged half-columns, and no peristyle. In the interior were found several pedestals for statues, and a flight of five steps, leading to a raised platform, at the west end. This temple is presumed to be that of Venus, as several statues of that goddess were found in it.

In September, H.M.S. *Melpomene* arrived, and soon afterwards the cases containing sculpture were, with the aid of the crew, taken to the beach and safely deposited on board, notwithstanding a show of opposition on the part of the Arabs. The two members of the expedition quitted the shores of Cyrene in the *Melpomene*, after a residence there of eleven months. The marbles were conveyed to Malta, where they were transferred to the *Supply*, Captain Balleston, who had formerly taken charge of the Budroum sculptures, and conveyed to England, where they were all arranged and identified by the zealous keeper of Greek and Roman antiquities at the British Museum, Mr. Newton, to whose efforts the expedition in a great measure owed its success. The best figures have been admirably photographed by Mr. Bedford. These photographs, together with thirty excellent views by Captain Porcher well rendered in lithography, and Captain Smith's spirited description, combine to form a volume interesting to the antiquary; pleasing to the man of artistic taste; and, moreover, attractive to every one who can enjoy the perusal of a well-illustrated narrative of adventure and discovery in a territory seldom before visited, and never before thoroughly explored.

Having endeavoured to give a brief outline of the mode in which the valuable collection of sculpture has been obtained for the nation through the exertions of two talented men, and at small outlay, we may now ask how it is that similar expeditions are so frequently left to individual enterprise. In the survey of Jerusalem at present being carried on by Lieut. Wilson, R.E., and four sappers, Lieut. Wilson has to pay all expenses incurred in underground explorations out of his own pocket. It is true that this will not be a remunerative undertaking; still, as the results will be of the greatest interest to the whole Christian world, of which we consider England to be the head, we should surely consider the few hundreds that might be spent upon it by those who hold charge of the purse-strings better laid out than the thousands that sometimes are expended in other ways; and we and posterity would say of the statesman who had the boldness to bear the responsibility of advocating it to his more economical colleagues,—He deserved well of his country. Expeditions such as that to Cyrene, to use a common word, "pay" (if the Budroum or Cyrene marbles were put up for sale in the great auction mart of nations, they would realize much more than they cost the country); and they are not only profitable, in a commercial point of view, but they are also otherwise advantageous, by tending to extend the influence of England's name amongst the nations of those countries in which they are carried on; for the presence of a ship of war exalts our prestige amongst uncivilized people, who are naturally inclined to respect "physical force" more than anything else. The moral force, and the justice of the English character, also make their impression upon people who are accustomed to misrule; and these expeditions are also beneficial to the natives themselves, for, in addition to the idea of sterling worth impressed upon their minds, they have also the benefit of the sterling gold, which in itself is a civilizing power, left in their hands. Regular pay for regular work is the best corrective of predatory habits. Such being the advantages of these expeditions, let us hope that they may be more warmly encouraged, now especially that we have amongst the members of Government two distinguished by their taste for art, and whose successful missions in Eastern countries have made their names deservedly popular.

There are various fields for enterprise, and as the undertakings can be shown to pay, we should not be at all surprised if some day they are undertaken by "limited liability" companies. A bonus for the privilege of digging, and an offer to share the proceeds, might induce an impoverished Government to consent to the disinterment of those treasures of art which probably otherwise remain for ever useless to it.

Hundreds of fine Greek statues are known to be buried in the Olympian plain. 5,000*l.* properly expended would bring most of them to light, and amongst them possibly some of the precious materials of which the statue of the Olympian Jove himself, the *chef-d'œuvre* of Phidias, were constructed, for on account of its enormous dimensions (it was 55 ft. in height) it was probably never taken to Constantinople entire, as some historians state. There would be a fine dividend in that case. The city of Rhodes abounded with works of art: a handsome *bakshcesh* would be the means of obtaining permission to carry tunnels under it, and the results would no doubt well repay the outlay. These are two amongst many sites which could be mentioned where the results would most probably greatly exceed the cost of excavating, and certainly it is better that such fine works of art as the Elgin marbles, the figure of Mausolus, the Apollo of Cyrene, and the Venus of Milo, should be placed in national museums to instil a taste for the beautiful into all succeeding generations, than that they should remain for ever buried in the ground, or be destroyed by barbarian hands. What matter if they be not always appreciated as they deserve—truth and beauty are intimately allied; and we may be certain that the admiration of them will outlive all changes of taste; that however wildly the waves of fashion in art may rage around them, these dignified and graceful statues of antiquity will survive, serenely smiling at the ebbing and flowing tide at their feet, as though to say,—Ours is the domain of true beauty, and all your puny efforts to induce another belief will be for ever useless.

* See p. 100.

## BRITISH INSTITUTION.

How pleasant it would be to find some new verbal system of expressing worn-out opinions of ever-recurring matters. For a long time past notice of current picture-exhibitions has involved little else than reiteration of the same judgments on the same evidence and comparisons with those of antecedent date; and if there were nothing much to be said of Messrs. So-and-So's then particular performances, a reference to something they had done formerly afforded agreeable opportunity for augmenting or qualifying praise, or the contrary, as the case might be.

It is but a poor compliment to pay to a present year's production to say that it reflects more favourably than other efforts latterly have done, very old impressions of bygone circumstances and memories never allowed to be displaced by something subsequently better worth the remembering; and one with as much of the bitter as the sweet in it for those who dream and talk about progress, to be told they are *getting on*, because they show intermittent symptoms of becoming more like what they were some fifteen or twenty years ago. There are too many of us who have lapsed into the chimerical belief that

it is only necessary to drive on in the deeper ruts of life's road to make sure we are advancing; and would, probably, only be made conscious of even so simple a fact as of the world's being really round by waking up at our long journey's end just at the point whence we started, and with only such cold comfort as might be derived from the consolation that there are thousands yet to be undeceived no earlier than we were,—so dominant is the example of habit over any consideration of its being a right or a wrong one.

Whatever advantages the present show of pictures at the British Institution may possess above the common run of them are mainly attributable to a return of some of the assistance that used to constitute its importance when more freely bestowed, and to there being a larger number than usual of agreeably pretty little works—as distinct from the *dis*agreeably pretty—with, perhaps, an extra display of merit in the emanations of one or two of its contributors of landscape. But, unfortunately, to arrive at the conclusion of there being any favourable difference, it is requisite to ignore the greater proportion of its constituent items, and graciously accept that which is really good as compensation for so much that comes under the opposite extreme of denomination.

The leading attractions are Sir Edwin Landseer's portrait of a Skye-terrier, the property of Her Majesty, in which his power of hand and apprehensiveness of animal character are as marked as ever: (85) "Dear Old Boz," is evidently a likeness invested with all the extra value that consummate art can give: a characteristic statement of a disappointment to horse and hounds that have been turned out for a run, but are prevented by frost and a fall of snow, and that there is "No Hunting" till the weather breaks (189), appears to be as lamentable a state of things to them as it doubtless is to their owner; with a third and still more valuable exponent of his masterly application of genius, "An Event in the Forest" (204), which may be classed with the best of its precursors. A stag has fallen from a precipice, apparently shot by the stalkers, dead, and out of reach and sight of its assailants: the body has attracted the hungry attention of a fox that finds his possession of the carcass is about to be contested by an eagle looming through the misty freezing atmosphere; the snow that covers in one cold shroud the broken masses of rock and all things represented but the living and the dead creatures, serves as an auxiliary for enunciating the wonderful mastery of form and colour attained by Sir Edwin. The picture is one of those epics in which he allegorises human as well as animal instincts, and inculcates a moral. Mr. Ansdell has attempted a similar aim, but has been unhappy in selecting "The Death of Cæsar" (1) for apostrophe: viewed in the abstract as a matter-of-fact specimen of animal painting its claims to be considered superlative are undeniable; though his admirably-studied dogs, and the illusive appearance of accessories, are so misapplied and incongruous that the result is a burlesque of serious drama.

Mr. Dawson's splendid panoramic representation of "London from Vauxhall" (195), helps very much to raise the character of the collection. Truthfulness has in no way been sacrificed to obtain pictorial effect; and yet, by a judicious selection of influences, he has been able honestly to impart to London as much gorgeous glow of colour as even Venice can boast of. Seldom have the exquisite beauties of a morning sky, with its delicate gradations of pure colour, unsullied as yet by the black breath of busy manufactories, met with such just appreciation, and such power to record it; and few could have rendered so faithfully, and at the same time invested with so much picturesque worth, wharfs and old outbuildings that the multitude would pass by as objects unlikely to be used with profit. In its combined excellence of verisimilitude and artistic treatment, it may compete with any cognate example. Not so much can be said of Mr. Niemann's "Hampstead Heath" (601); in spite of his forcible appeal to the eye for method of execution and immensity of canvas, it has the appearance of a small picture magnified, and its deficiency in the finer qualities of art is not to be atoned for by any amount of those more easily acquired, with such a comprehensive opportunity for their application.

Mr. W. B. Richmond has idealised his portraits of "Three Sisters" (118), by a peculiar though beautiful treatment that proves the susceptibleness of the pretty costume now worn by young ladies, especially if they be as charming as these are, to the supply of all the necessities of the painter. With the subdued richness of colour that pervades it, and the graceful attitudes of his sitters, so well supported by the appropriate landscape back-ground, the work is acceptable as a picture with a poetic charm of its own, irrespective of its more immediate interest.

Mr. H. W. Phillips's study of an Egyptian's head, "Suleiman" (174), is conspicuous for the vigour and simplicity of his style,—a very admirable one,—and for its harmonious effect, as well as for the life-like presentation of the nation typified. It is one of the most charming works in the room; and was bought by the Council of the Art Union of London at the private view. Mr. Buckner's "Brunetta" (217) and (541) "La Biondina," have the recommendations common to all of his productions: they are exceedingly pretty and most dexterously handled. "The Beauty of Valentia" (551), by Mr. J. B. Burgess, shows an increase of power in its capital representativeness, although he labours under a disadvantage in so closely following in the wake of the inimitable Spanish Phillip. This objection is still more prominent in the works of others here less capable of sustaining a comparison.

There are very few illustrations of dramatic incident to be cited as having special claims of attention above those presented by Mr. E. C. Barnes in "Vive la Gloire" (374), wherein a wounded and tired out French veteran, in the uniform of Napoleon's cherished "Old Guard," is lying asleep near the village well, where he is discovered by a peasant-girl and child, who have come to draw water. No striking originality marks the conception of this story; it is simply an enunciation from a very old source of satire very well made; and the expression of terror, mixed with compassion, depicted in the faces of his startled discoverers, as well as the utter prostration of the poor soldier, indicate talent enough to build great expectations upon, increased by consideration of the workmanship and good feeling for colour that are evident in the sound manipulation of its parts.

Mr. Pettie's "Out of an Engagement" (312), if it do not clearly elucidate its subjects at first sight, has that in it which will induce to a knowledge of it after a more deliberate examination. It may be supposed to represent a theatrical family a week or two after the last night of "the best pantomime in London," left without resources or hope for a speedy profitable investment of their humble abilities, arms, and legs. The father or grandfather, with the enthusiasm of a true artist, is keeping up his practice against the time his fiddle may be in requisition; but the two little girls, denuded of their "fairy glory," sit like little Cinderellas after twelve o'clock, huddled, all rags and wretchedness, over the few embers that remain to them yet in the grate. Their location is in keeping with their want of allocation, squalid enough to satisfy the most morbid views of common acceptance; but withal there is nothing in a bare garret significant enough of its inhabitants' professional calling, and nothing sufficiently pronounced to assist, beyond a surmise, the direct intention of the picture. However, this is much better in all respects than a second contribution (402), "The Wounded Despatch-bearer."

In academic proficiency Mr. C. Lucy's carefully-drawn and naturally-disposed figures of "The Sleeping Babes in the Wood" (358) fall short of little that might be wished for: overlooking the age of his children as not agreeing with their description in the ballad,—

> "The one a fine and pretty boy,
> Not passing three yeares olde;
> The other a girl more young than he,
> And made in beautye's molde;"—

and allowing for the "twelvemonth and a day" additional, they must be allowed to be very fine-grown, and the picture to be one of the stars of the exhibition. Mr. G. D. Leslie still clothes his romantic episodes in fifteenth-century dress. "Cherries" (395), in which their analogy with ladies' lips is the sentiment conveyed, if not a very serious, is, at least, a congenial motive to all who may envy the smart young gallant perched on the lower bows of the tree, deducting from philosophical researches the most pleasing and convincing results, as he feeds, in cherry-bob fashion, the lady of his choice, and finds that,—

> "Cherries and lips do well agree,
> And 'twixt them is good harmony
> Of colour bright and sugar sweet;
> Therefore 'tis meet,
> This pleasant weather,
> That lips and cherries should come together.
> But lips than cherries are more sweet:
> What if they meet?"

But, to save space, it is necessary where mention is equally deserved, to note, when annotation is not easily possible, some others of the pictures of various merits, such as Mr. E. Crawford's satire on the legality of the law, "A Man of Straw" (3), wherein counsel is doing rather more than "nursing a witness;" "The Last Lucifer-match" (9), by Mr. J. T. Lucas; "The Coast of Normandy" (34), by Mr. D. W. Deane; "Baby's Corner" (51), by Mr. Frank Wybard; "Innocence" (68), much more successful than "Guilt" (502), by Mr. A. F. Patten; "Travelling in Russia" (84), by Mr. A. F. De Prades, a notable painting of horses; "A Drop for Pussy" (91), by Mr. J. Morgan, the worst part of which is its title; "Composing his Love-Speech" (109), by Mr. D. Wilkie Wynfield; "Cramming for Examination" (121), and its companion, "Cudgelling the Brains" (440), by Mr. S. Anderson; "A Stitch in Time" (134), by Mr. W. Hemsley; "A Naiad" (138), by Mr. W. E. Frost, A.R.A.; "Turned out of Church" (147), by Mr. Frank Holl, jun.; "The Dead Heat" (162), by M. A. Ludovici; "The Mountain Spring" (194), by Mr. W. Underhill; "Going to School" (225), by Mr. J. Clark; "Music and Dancing" (282), by Mr. D. T. White; "The Arabian Nights" (296), by Mr. L. Smythe; "The Protector" (307), by Mr. C. Rossiter; "A Dame's School" (370), by Mr. E. Davis; "Miranda" (453), by Mr. T. F. Dicksee; "Going Home" (461), by Mr. C. S. Lidderdale; "La Caridad" (489), by Mr. E. Long; "Une Matelotte," by Mr. J. Hayllar (447); "The Sea King's Funeral Boat," (529), by Mr. W. B. Scott; and "The Young Bohemian" (587), by Mr. T. F. Graham, that call for more than a meagre note.

To Mr. S. B. Halle we would quietly intimate that it is a great impertinence to thrust upon the public so many repetitions of one face. At the British Institution last year, at the Royal Academy, at the Pall-mall Gallery, and now again at the British Institute, this same child's face, with nothing particular either in the original or in the pictorial treatment,—has smiled out upon us from fifteen or sixteen canvases at the very least, till one naturally passes by without waiting to see if the painter's imagination has led him to colour the table-cloth red or green.

Of the landscapes nothing further need be said than that they include performances by the Messrs. Cole, Jutsum, Stark, T. & J. Danby, Percy, Williams, A. Gilbert (see "The Black Mountain"), Harry Johnson, Montague, Oakes (a poetic work), G. Stanfield, and others as well known by a speciality. The three little marine pictures of Mr. E. W. Cooke, R.A., are quite a feature in themselves, and are sure to attract the attention of all who seek for excellence.

## SCHOOLS OF SCIENCE AND ART.

*Lord Lyttelton and Mr. Foley, M.P., on Science and Art.*—At the annual *soirée* of the Kinver Grammar School, Lord Lyttelton said:—As one of the Royal Commission I heartily gave my assent to the introduction of science teaching in our public schools. The evidence in its favour was most conclusive. The subject very naturally attracted some attention in the house of Commons. The Government, through the Science and Art Department, is desirous of encouraging the study of elementary science, not only in our endowed schools, but in classes during the winter months for those who have left our elementary schools. I believe the department is doing a very useful work.——Mr. Foley, M.P., said the science classes which had been established at Kinver in connexion with the Government Department of Science and Art, had been most satisfactory. The introduction of science was a new feature; but, in a district like Kinver, a knowledge of chemistry must in many ways be most valuable. From a return which had been published, he found that, of all the science classes in South Staffordshire, the Kinver and Kidderminster classes had been most successful. He was not well acquainted with the plans of the Science and Art Department, but he had no doubt the address of Mr. Buckmaster would give much valuable information on this subject.——Mr. Buckmaster then addressed the meeting at considerable length. He alluded to the origin of the department, and the early votes of public money for scientific societies in Ireland, the founding of mechanics' institutes, and the educational objects which these institutes had in

view. He then dwelt on the value of natural science as a means of moral teaching.

*Christ Church District School of Art.*—On Wednesday evening, the 25th ult., a *soirée* took place of the students of the School of Art in Cannon-street-road, St. George's East, in union with the Government Schools, South Kensington, and their friends, to the number of between seventy and eighty, under the presidency of the Rev. G. H. McGill, the president of the institution. The model drawings exhibited by three of the students (Misses Spragge, Grace, and Stewart) obtained notice, both for correctness of style and delicacy of finish. The first of the above ladies gained a medal at the last national competition. The room was decorated with flags and collections of drawings kindly lent by the Science and Art Department. The students have to thank the art-master (Mr. Menzies) and the secretary (Mr. James Duke) for a very pleasant evening's entertainment. The school offers advantages to artisans and other students.

*School of Science and Art at Oldham.*—A school of Science and Art, presented to the trustees of the Oldham Lyceum by Mr. John Platt, of the firm of Platt, Brothers, & Co., machine-makers, has been opened at Oldham. The subjects to be taught in the institution will embrace pure mathematics, chemistry, building and constructive drawing of every kind, on the system pursued at South Kensington. The school-house consists of three spacious rooms, one of which is to be employed as a music-hall for singing-classes and concerts. Under these rooms is a gymnasium.

*The Nottingham School of Art.*—The first public meeting in the new School of Art has been held for the distribution of prizes. The award, which should have taken place in 1863, was postponed in consequence of the want of a suitable building. The lighting surface of the school is half the area of the ceiling, and the hanging space is limited to the height of 17 ft. 6 in. In opening the proceedings Mr. Alderman Birkin, who occupied the chair, remarked that they were at last settled, and had a permanent resting-place in a building which was one of the ornaments of the town. They hoped, also that the influence of such a building would have a tendency to raise the character of the staple trades of Nottingham, and induce a greater love of art amongst all the varied industries of the town and neighbourhood. Great good had been done by the school; but the inhabitants would take a much greater interest in the affair now that they could see the preparations made, the accommodation afforded, and the appliances supplied, besides the assistance to be tendered by Government. With reference to the national medallion, which was amongst the prizes distributed, we may again state, for the information of those who do not already know, that the work is executed in *repoussé* by M. Vechte. A portrait of the Queen occupies the centre, and surrounding this is an allegory, which M. Vechte thus explains:—

"The principal figure at the top of the medallion is Genius, attended on his left by Justice, Truth, and Science, attributes essential to an academy of artists; and on his right by a student meditating. In the background crouches Jealousy or Ignorance; whilst Fame is proclaiming the merit of the successful student, and Time and a youthful Genius hold the shield to receive the student's name."

The medallion is awarded in the yearly national competition of the students of all the art-schools of the United Kingdom, and is the highest prize for success in art given by the Science and Art Department of the Committee of Council on Education. The examiners are,—Sir Charles L. Eastlake, P.R.A.; Daniel Maclise, R.A.; Richard Redgrave, R.A. (inspector-general for art).

At the meeting, Mr. F. Fussell, the head master, read a paper, in which he thus spoke of the working of the school:—

"In the first place, instruction is not confined within the building; instruction in art of a useful character is given by means of this school to fifteen public schools; and, according to the last report, 1,447 are being taught; 371 were selected and came up for examination; and 333 were successful, either in drawing, ornament, working a paper of problems in practical geography, or model drawing. There are besides about five other public schools that send their pupils for examination, making altogether, and exclusive of students, about 2,700 receiving instruction in drawing; 596 of these attended the examination, and 512 were successful. The students of the School of Art numbered 203 for last year, divided into fifty-seven different trades or occupations. Sixty-three of the higher-grade prizes were awarded for successful papers in free-hand, model, and mechanical drawing, geometry, and perspective; fourteen medals for advanced studies and designs, and four national medallions, a result that is more satisfactory than the preceding year, when the school obtained nineteen medals and one medallion, because at all times quality of work must be of more importance than quantity."

*A School of Science for Stourbridge.*—An effort is about being made to form a School of Science at Stourbridge. The manufactures and employments in which many living around Stourbridge are engaged are intimately connected with several general branches of science, and to such the formation of a School of Science should especially commend itself. The promoters do not contemplate making it exclusively an artisans' school, but they look for its practical advantages being widely appreciated by artisans and others who have an immediate interest in the knowledge which such a school will seek to impart.

*Newcastle-upon-Tyne School of Art.*—The annual examination in connexion with this school has been held, and is said to have been the most successful since the foundation of the school in 1844. From the report presented by Mr. W. C. Way, the head master, it appears that the total number of students who had attended the school during the year 1864 had been 410, or fifteen more than the previous year; while the increase in the amount of fees paid by students was 26*l.* 10s. 1½d. as compared with 1863.

*Stroud and Gloucester Schools of Art.*—The prizes were distributed by Mr. Gambier Parry at a meeting held last week. Mr. S. S. Dickinson presided, and his account of the school was most encouraging. Mr. Parry delivered his lecture, "The Claims of Art upon an Age of Business," and the meeting was also addressed by Mr. S. Marling, Mr. Samuel Bowly, and Dr. Paine. Three cheers were given when Mr. Parry presented the national medallion to Miss E. R. Stanton, its winner.

## ORNAMENTED AND STAINED GLASS.*

I PURPOSE giving an account of the different methods now used in England of ornamenting glass, and of the mode of producing stained-glass windows in ancient and modern times.

If a window space is to be filled in the cheapest manner, merely to be seen through, and as a defence from the weather, you would use common German sheet glass, which can be bought for 1d. to 4d. per square foot.

If the glass is not required to be seen through, but only to admit light, you would use either rolled plate (say 7d. per foot) or common ground glass; the latter being, from its exceedingly cold aspect, the worst thing to be used in any case.

Now, for about 6d. per foot extra, this German sheet glass may be ornamented with any simple device or geometric form, the pattern being of transparent glass, on a semi-transparent ground formed of white enamel.

This production, and some of its varieties, are termed "enamelled glass:" their manufacture give employment, at Messrs. Chance's and Messrs. Pilkington's works, to about fifty hands, chiefly girls.

This is the manipulation: lay the sheet of glass on two strips of wood about 3 in. high, on a bench; paint over one side with white enamel, finely ground on a glass slab with a muller, and afterwards mixed with a little weak gum-water: you must not paint it as you would a door, but put on a thin coating of the enamel with a flat camel-hair brush, and, before it is dry, make it perfectly even with a broad badger-brush, using it backwards and forwards all over the sheet, at first heavily, afterwards very lightly. Now cut your pattern out of a small sheet of tinfoil or annealed copper, the same way as letter-plates for marking linen are cut, and place it on the dry coat of enamel. Then with a nail-brush remove the enamel, until the clear glass appears in the parts not covered by the plate. Continue this all over the sheet of glass. If the enamel is not easily rubbed off, there is too much gum in it; if the pattern-plate works up the ground, there is too little. Then, after removing the metal plate, put the sheet into a glass-stainer's kiln, for the purpose of fixing the enamel.

The white enamel is thus made: take one part of oxide of tin, or any other white substance not liable to change at a red heat, such as calcined bones or china clay, and mix it with three parts of a flux composed of three parts of red lead and one of sand, melted together for one hour at a white heat. The mixture, when finely ground with water, is the white enamel in common use.

The ordinary white enamel used for watch-faces may be bought in cakes at the Whitefriars Glass Works for 2s. per lb., and answers every purpose.

The principle of engine-turning, as applied to the backs of watches, is also sometimes adapted to the cheap production of enamelled glass.

Or, a pattern may be etched out with a stick, as in etching on copper. A piece of the wood of which butchers' skewers are made, cut to a broad point, is generally used.

Another way is this: paint the pattern with common whiting and gum-water, and, when this is dry, cover the whole surface of the glass with the white enamel, mixed with turpentine. The whiting, which has in the trade the name of "never-stick," prevents the enamel from adhering. A similar process is used in calico-printing.

Patterns are supplied in large quantities by these simple processes, and are, as a rule, very good: in many of them there is a want of simplicity, and the outside appearance of the raw white of the enamel is very disagreeable.

A tint of colour, such as pink or blue, is sometimes used, instead of the white; but the greatest improvement would be making the white of an agreeable tone by the mixture of small quantities of some coloured enamel. I offer the suggestion of a ground made by coating the glass with a dark-coloured enamel, and ruling it with lines nearly close together, made with a needle-point. This would not be discernible on the outside, and would give the inside a more brilliant surface.

I have now to speak of embossing, some specimens of which are met with in most of the large shops in London, especially in public houses. It is remarkably easy of execution, and competition has brought down the price so low as to render the production of it by itself almost worthless as a trade.

Plate glass, the contract price of which is 3s. 3d. per foot, is usually selected for this enrichment. An ordinary pattern can be embossed on this for 1s. 6d. per foot; one very elaborate for 3s. 6d. This is the way to emboss. The plate of glass, carefully cleaned with whiting, is placed over the drawing, which is usually a bit of unhealthy scroll-work; and the ground of the pattern is painted with common Brunswick black, to resist the action of the acid. When this is quite dry, a bank is built round the edges of the glass. This bank may be formed of strips of glass, made water-tight at the lower edges with hot tallow and carbonate of iron, laid on with a brush. Then pour on fluoric acid, which should be of medium strength, and let it remain for about half an hour. When the pattern is bitten in, say a sixteenth of an inch, scrape off the Brunswick black, and grind the surface of the glass with emery and a piece of plate glass about 2 in. square. A clear pattern on a frosted ground is thus produced. If the acid is too weak, the Brunswick black will come off before the pattern is sufficiently bitten in: if too strong, the engraved surface will be very rough. If, therefore, the acid is too strong, or when it bites unevenly, keep the surface of the glass stirred with an old brush. If fluoric acid of excessive strength is placed upon glass, corrosive action is instantaneous, and an appearance is given to the surface like that seen upon old glass by the action of the atmosphere for several centuries.

Any one with an ordinary knowledge of the use of the pencil, and with 20s. in his pocket, may set up as an artist in this pursuit. A bottle of Brunswick black, 1s.; one lb. of fluoric acid in a gutta-percha bottle, say 3s.; with a rest for his hand, a few pencils, and a packet of emery; these form his humble stock-in-trade. The facility and cheapness of execution, and competition, have caused embossed glass to become one of the items in builders' contracts; and although it should not from that cause become an inferior production, yet I do not believe there are a score patterns in all London equal to what ornamental drawing should be. In most cases too much is attempted; an utter want of knowledge is shown; and what would become interesting through invention, is a vile compound of unmeaning scraps, cooked up without skill or taste.

A study of the ornamentation of the early Greek vases in the British Museum, and the acquirement of knowledge generally, would have great influence in correcting these feeble and intemperate productions. In embossed glass, skilful linear ornament and invention may be hoped for, but nothing more. In Mr. Crace's office-doorways, Wigmore-street, are specimens of the highest character, and these are instances of its utmost capability.

* By Mr. C. Heaton. Read at the Architectural Association.

There is also some good work in the windows of the Hero of Waterloo public-house, near Waterloo Station (Messrs. Hill, & Co., architects), but the patterns are all alike. The ceiling of the library of Orleans House is of this kind of glass, but the effect is painfully cold, and unworthy of imitation.*

We now come to the method of staining and colouring sheets of white glass, a process used principally for hall-lamp squares. The manufacture is almost confined to Messrs. Chance's glass-works. The yellows and dull reds are produced by a silver stain afterwards described; the blue is a semi-transparent enamel, made with the black oxide of cobalt, melted with a soft flux. Green is produced by painting one side blue, and staining the other side yellow; browns and flesh reds by the peroxide of iron mixed with a flux.

About thirty years ago, before the production of stained-glass windows was understood, some of our church windows were ornamented by this process. Reynolds's window, in New College, Oxford, is an instance. I lately examined this window, and found it in an excellent state of preservation. Not so the Van Ling windows in Christ Church, Oxford, also of this kind, painted in 1630 on squares of white glass, but now decaying in large patches.

The productions of the modern Munich school, which are but little more than transparent paintings, are largely indebted to this enamel system of painting. The Peterhouse Church, at Cambridge, with the exception of its fine old window at the east end, is full of these German transparencies. Occasions might arise when this system of glass ornamentation would be required; but it is an unskilful way of painting, and may be left to ornament cheap lamp squares without regret.

Both white work and embossing may be made good of their kind, and the effort to produce skilful specimens will fit the artist in some measure for work of higher import. One test for good ornamental work is the axiom advanced by the Marlborough House authorities, that "ornament must have some near or remote signification."

The art of glass painting,—that is to say, painting made of pieces of coloured glass united together with bands of lead, was invented in France about the middle of the twelfth century.

At the beginning of the thirteenth century, it became a part of the system of the decoration of French Pointed architecture, spreading at the same time all over the north-west of Europe, wherever Northern Pointed architecture became established.

During the whole of this century there was such a rage for this decoration, that not a window was constructed without inserting stained glass, or intending to insert it.

There are some few existing specimens of twelfth-century glass. They occur at the abbey church of St. Denys, and at Poissy, in France, and in the aisles of the choir of Canterbury Cathedral; but the remains of stained glass of the thirteenth century are abundant.

In the south and south-east of Europe the system of decorating the interiors of buildings with mosaic work had been long established; and the most marked examples are the coarse work at the Cathedral of Kiev, in Russia, and the more refined paintings of St. Mark's, at Venice.

There was at first much similarity between glass painting and mosaic painting. The Byzantine mosaics (of Roman origin) were made of rough cubes of coloured opaque glass, imbedded in cement; and the earliest stained windows are believed to have been made of small pieces of translucent glass, imbedded also in cement.

There are but few remains of windows of so perishable a construction. There are some specimens in England that have been brought from the Continent, but are of uncertain date; and Mr. Burges mentions that the Mosque of St. Sophia, at Constantinople,—a Byzantine building of the tenth century,—was so glazed, and that it is still a custom in the East to make the windows of glass and cement alone.

A great improvement on the use of cement was the method of fastening together the small pieces of translucent mosaic with leaden bands, having a groove on each side; and we have to thank the inventor, whoever he may have been, but who lived somewhere about the twelfth century, for this mode of constructing stained windows, very many specimens of which have endured for seven centuries.

The construction of a stained window by means of glass and leaden bands only, must have been a very tedious work; and, in time, means were discovered of greatly accelerating the process, by making the glass in larger pieces, and by the addition of enamel painting.

Take, for instance, the head of a saint: this, before the introduction of enamel painting, would have been made up of different coloured glasses,—one colour for the hair, another for the beard, and white glass for the eyes; the lines of the eyebrows, ears, nose, &c., would have been expressed by the lines of the leaden bands, which also served to unite the different pieces of glass.

But, after enamel paintings had been invented, the process would have been this: a piece of glass as large as the head would be shaped to the required size. The features would then be painted with opaque enamel, and afterwards the glass would be exposed to a full red heat to cause the enamel to adhere.

The composition of this enamel paint is in glass painting a very important matter. The ancient enamel is in many instances perfect to this day, and occasionally has preserved from decay the glass itself; while in many modern windows, after a few years, it altogether disappears. There are many stained windows, some of them of great repute, executed within the last ten years, that have required nearly as much restoration from this cause as windows of the thirteenth and fourteenth century.

Enamel is composed of a mixture of metallic oxide, and a flux: this flux answers the same purpose as copal varnish in decorative painting; it effects the adhesion of the colour to the surface. In the decorative paintings of the Houses of Parliament, a mixture of copal varnish and turpentine was used, and I think it the best material for the purpose. In glass painting, a flux is required that shall melt at a lower temperature than the glass itself, and that shall not in course of time decay by the absorption of moisture.

Borate of soda, potash, soda, or salt, all deliquescent materials, are often used for glass-painters' colour; and they all, sooner or later, disintegrate through absorption of moisture.

A colour that you may trust is composed of red lead, sand, and oxide of iron. Melt for two hours, at a white heat, three parts of red lead and one part of white sand, and pour it into water; then pound it fine, and mix about four parts of it with one of oxide of iron (Indian red) or burnt umber, and a little manganese; grind it very fine with a muller on a glass slab, and paint the glass with it, using either a little loaf sugar and water, or turpentine mixed with old turpentine that has become thick.

Potash and soda, you are aware, are both used in conjunction with silica in the manufacture of glass; the silica and the alkali are mixed in such proportion as to neutralize any further action of the alkali. Not so in a flux composed of potash or soda. To obtain the requisite low point of fusion, the alkali must be used in excess, and, not being neutral, it very soon becomes hydrous. The cause of the decay of some of the ancient glass was its having been mixed with too great a proportion of alkali, which in the course of centuries has absorbed moisture enough to work the mischief.

At the earliest time in the history of glass-painting the pre-existing mosaics appear not only to have suggested the invention of stained windows, but to have been the mine whence the painters drew some of their materials. There is a striking passage bearing on this point in the treatise of Theophilus, a translation of which you will find in Winston's "Hints on Glass-staining." Theophilus was a learned and pious monk, who wrote in Greek several treatises, but when, and at what time, no one seems certainly to know; but, from his perfect knowledge of stained-glass windows, he most probably lived about the thirteenth century.

"There are found in the ancient buildings of the Pagans in Mosaic work, different kinds of glass, viz., white, black, green, yellow, sapphire, red, purple; and the glass is not transparent, but dense like marble. They are, as it were, small square stones from which are made works inlaid in gold, silver, and copper. There are also found various little vessels of the same colours, which the French, who are skilful in this manufacture, collect: they fuse the sapphire in their furnaces, adding to it a little clear and white glass, and they make tables of sapphire, which are precious and useful in windows. They make tables of purple and green in like manner."

The supply of coloured glass by the Pagan mosaics would not have gone very far in supplying the demand for the great manufacture of thirteenth century windows. The French, there is reason to suppose, were quite able to make all the coloured glass they wanted, and to supply the wants of others even beyond the seas.

In the seventh century they were noted for their glass-work. At the end of that century Bishop Wilford brought glass-makers from France to glaze the windows of Hexham Church, and also those of the cathedral of York. The materials necessary for the construction of a thirteenth-century window were, a flat table, the size of the window, to work upon: on this the design of the window was drawn, and most likely coloured; great care was taken in arranging their colours. Then, small sheets of glass, of about seven colours, were obtained. You will not find many more colours in any early window, and these sheets were made out of cylinders of glass split open and flattened. They were thicker than our window-glass, very uneven, and more like horn than glass.

Out of these sheets were cut to shape each separate item of the window: the heads, hands, and feet were cut out of flesh-glass, the tunic, say, out of green, the girdle brown, the legs red, and shoes blue, perhaps. When these pieces were laid down on the drawing they fitted almost close together, and would look very much like a dissected puzzle that children play with; only that the lines of junction went round the hand instead of across it; but if the hand or dress were larger than the sheets of glass they did not care much where the joints ran, excepting in large faces, when they would make lines of junction round the eyes, nose, mouth, beard, hair, &c. Each piece of glass was brought to shape with a red-hot iron and a grozing-iron. If you lay a red-hot poker on the edge of a piece of window-glass, you will soon hear and see a slight crack in it; now move on your hot iron, keeping it on the glass, and the crack will follow until you may bring it round to the place it started from. The cracks that sometimes occur in our own plate-glass windows, and which would eventually run across the square, are led round with a hot iron in a small circle, and rendered harmless. By these means the men of the thirteenth century fashioned their thousands of bits of vitreous horn in making windows. It was long before the use of the diamond in cutting glass was discovered. If the pieces were not truly fashioned with the hot iron, the workmen chipped away pieces from the edge with a piece of iron with a square notch in it. This was the *grozing-iron*.

Then followed the process of copying on the glass, with the dark-colour enamel, the features, hair, drapery lines, &c., and in all cases using a little what you may, by a stretch of imagination, call shadow, but which was only a thin film of the tracing colour, used in a very conventional manner, to assist the traced lines in giving expression to the faces and drapery. The pieces of glass painted with enamel were then placed on iron trays, over which had been sifted dry ashes, to prevent the glass sticking to the iron, and put into a close earthenware box, around which the fire played until the whole was red hot. Then the fire was withdrawn, and the box and its contents were allowed to cool gradually for the purpose of annealing the glass. The pieces were then placed in their former position on the drawing, and the workman put a band of lead round each piece. The bands of lead were cast in a mould, and had a groove on each side, into which the glass fitted.

Each joint, and wherever one lead touched another, was soldered together on both sides of the glass; and the window was completed by rubbing into the interstices some cement, to keep out the wind and rain; oil and whiting, possibly.

The completed window was then fixed in its place; and, if of moderate dimensions, had simply iron saddle-bars set into the stonework on each side, and to these the window was tied with strong strips of lead, soldered to the lead-work of the window.

If the window was large, an iron frame, an inch or two in thickness, was wrought to the leading lines of the design, and to this the window was tied, in a similar manner to the saddle-bars.

This was the construction of a thirteenth-

* There are manufactured in the glass-works sheets of white glass, veneered with thin coatings of red and blue. These coatings are easily removed with fluoric acid, and thus are produced the white patterns on red or blue grounds which border the windows of our newly-built stucco villas.

century window, and, with some few modifications, it is the construction of the windows of the present day.

These old windows presented several excellences. Firstly, of *material*; because the thick uneven glass was the cause of what Ruskin calls "palpitation of colour," a rich jewelry effect which cannot be produced by a thin material. Secondly, excellence of *workmanship*, because the painting was well and artistically done; it also presented great individuality, unskilful painting being a rare exception. Thirdly, excellence of *construction*. The division of the glass into small pieces tended to subdue the glare which stained glass, however thick, has in some degree. It also very materially strengthened the fabric, and it has been the cause of so many specimens being left to this day in such good condition. The wrought-iron frame not only gave strong leading lines to the design, but was a most workmanly way of construction. Fourthly, excellence of *colour*; because, with not more than about half-a-dozen colours, they were well coloured, never gaudy, but always rich. Of a series of windows, in one green, perhaps, was made to predominate; in another, blue, and so on. Just so were managed the windows in the clerestory of Sherborne Minster, by Clayton & Bell, some years ago. Fifthly, excellence of *design*. This, with the rare management of colour in the thirteenth-century windows, gives them their greatest value. The design is always original, and full of invention and feeling, and always suited to the place it occupies. There was no particular law as to the introduction of canopies, or medallions, or ornamental work. In the latter, colour was more considered than form, which was always very severe and conventional.

But about the *representation* of the *human figure*, there has been the greatest diversity of opinion. I adhere to the opinion that has often been expressed, that the figure-drawing in the thirteenth century was of equal value with the sculptures and wall decorations of the same period; that the artist did not see the necessity of representing the human figure in any other way than as symbolical representations: as such they tell their stories well, and in the simplest manner, and they always show the qualities most valued in all other sacred illustrations, invention, feeling, and colour.

Ruskin, in his "Stones of Venice," has explained in a few words what I feel greatly at a loss to express.

"It did not take five centuries to find out the appearance of natural objects; but it took five centuries to make people care about representing them. An artist of the twelfth century did not desire to represent nature. His work was symbolical and ornamental. So long as it was intelligible and lovely, he had no care to make it like nature; as, for instance, when an old painter represented the glory round a saint's head by a burnished plate of pure gold, he had no intention of imitating an effect of light; he meant to tell the spectator that the figure so decorated was a saint, and to produce splendour of effect by the golden circle. It was no matter to him what light was like. So soon as it entered into his intention to represent the appearance of light, he was not long in discovering the natural facts necessary for his purpose." *

## THE PROGRESS OF ARCHITECTURE IN THE NORTH.

NORTHERN ARCHITECTURAL ASSOCIATION.

THE annual meeting of this Association was held in the Old Castle, Newcastle,—Mr. F. R. Wilson, of Alnwick, vice-president, in the chair. The secretary (Mr. Thomas Oliver) read the annual report, which said,—

"Your committee have renewed satisfaction in congratulating the Association on its increasing importance, and the number of its members and associates. We have had enrolled during the past year on our books one honorary member, thirty-one members, and nine Associates, showing an increase in our number of one member. We have, however, to lament the great loss the Association has sustained in the death of its venerable president, who, from its first establishment, has from year to year occupied the president's chair, for which his age, position, and experience so well qualified him; and who, whilst his health permitted, took the liveliest interest in all the active proceedings connected with this society."

"The financial position of the Association continues in a satisfactory state, the total expenditure being 23*l.* 12*s.*, and the receipts 24*l.* 4*s.* 7*d.*, thus leaving a balance of 12*s.* 7*d.* in the hands of the treasurer."

The voting for president, which office was rendered vacant by the death of the late Mr. Dobson, was then proceeded with, the result of which was that Mr. John Green was elected.

The chairman then read an excellent paper on "The History of Architecture in the Counties of Northumberland and Durham and the Town of Newcastle-upon-Tyne, during the last six years," from which we take a few passages:—

*The Prosperity of the North.*—The impetus enjoyed lately by the architectural profession is due, of course, to the commercial and manufacturing prosperity of the North. This has called towns, ports, and bathing-places into existence along the north-east coast, where formerly there were but fishing villages. A few years ago, what were the Hartlepools, Middlesbro', Jarrow, Filey, Saltburn, Scarborough, Tynemouth, and Blyth, compared to their present importance. The vitality is nowhere more apparent than in Newcastle. The merchant whose representatives were content in former generations to live in chares, and subsequently in grim and prim streets, now build themselves residences in more salubrious sites. Doubtless the attention paid to the voice of sanitary science, the spread of conviction concerning the importance of plenty of fresh air, light, and pure water, has had its weight in bringing about this result; but if it were not for the commercial and manufacturing activity of the North, Newcastle would still boast the sylvan walks decked with woodbine and wild roses Mr. Dobson could recall, and its merchants be unpossessed of the princely means that enable them to line the banks of the Tyne with mansions that would not ill become the shores of the Arno or of the Tiber. Some of these new mansions, we know, are more than residences—they are storehouses of art treasure, from which the finest collection of modern art in the kingdom could be reinforced. The additions to the town-hall, under Mr. Johnson, are further evidences of well-doing; the merchants' offices are changing character, as witness the sumptuous piles upon the Quayside; and the open streets, partaking of the general enrichment, can boast of the sculpturesque Stephenson memorial.

*Alnwick Castle and Wallington.*—Any statement of the progress and prospects of architecture in the North would be incomplete unless it included mention of the splendid works which I had the honour of starting and of directing for five years at Alnwick Castle, and on which Signor Bulletti, now of Newcastle reputation, was also engaged, under my superintendence. But I do not propose to do more now than allude to them in contrast to those still gradually growing under the hand of the artist at Wallington Hall. Utterly apart as these works may appear at first sight, a second will show that there is a peculiar affinity between them. The Duke of Northumberland has remodelled his ancient castle, to embellish it, by the hands of Italian artists, with Raffaellesque decorations, with a single introduction of a Northumbrian subject. Sir Walter Trevelyan has reared a *cortile*, with surrounding *loggie*, to decorate them by native aid, with subjects that are purely Northumbrian. There are many persons who would prefer to have seen this order of things reversed; who would rather that the rendezvous of Border chivalry had been blazoned with pictures displaying Northumbrian deeds, and would deem the palazzo at Wallington more fit receptacle for Cinque-cento decorations. But I would hesitate before I made any comparison that would cause any one to look otherwise than admiringly both at the letter and spirit of the work and taste at Wallington. The plan of this mansion, when placed in Mr. Dobson's hands, and under the superintendence of Mr. Johnston Hogg, was that of a quadrangle encircling an open court; although originally, I think, it must have consisted only of three sides of a square, like other country-houses built at the same time, with the entrance, which was unfurnished with lobby or ante-room, opening into the middle room in the front of the house. The chief feature of the new work is the arcaded saloon, into which the open court in the centre of the house has been converted. This is a light, lofty hall, about 35 ft. square, and 36 ft. 4 in. high, measuring to the top of the coved ceiling. As the means to effect this end, the internal walls of the house were removed, laying bare the grand staircase and corridors on both stories that served as communications, and a series of arches on two tiers were built in their places, open to the cortile, like those in the famous Raffaelle loggia in the Vatican. Of the two galleries thus formed, the upper one is protected by a graceful balustrade between the piers, the design for which, I believe, came from the pencil of Mr. Ruskin. All the pilasters are to be decorated with different groups of natural flowers, ferns, and forest trees. In the centre of each of the eighteen spandrels in the lower tier are placed medallions of Northumbrian celebrities, beginning with the builder of the great Roman wall, and ending with Robert Stephenson. And I may add that a group, already finished, of wheat, oats, and barley, on one of the pilasters, is the work of the same hand that gave the sketch for the balustrade above it; and that others have been painted by various friendly and skilful hands. The *cortile* is covered by a novel ceiling of the form Italians call *a schifo*. Besides being coved, it is divided by the beams into panels, in the centre of which are large hemispherical glass lights, specially cast in one piece by Messrs. Swinburne: and these being globular on the outside, are never obscured by rain or snow. They also possess the advantage of giving an equable shadowless light as long as day lasts, lighting up the glowing colours within more successfully than by lateral fenestration. The sculptor and painter are still engaged upon work that will further add to the richness of the general effect. Mr. W. B. Scott has not yet finished his series of pictures portraying the incidents of Chevy Chase; and Mr. Woolner, poet-sculptor, is preparing a group in marble, which will represent the progress made in civilization since the deeds were enacted that are depicted on the walls. On the ground floor, now nearly completed, between the piers on the north and south sides, are Mr. Scott's famous pictures, in which the history of the county is chronologically set forth. The Roman *loggie* are painted with pictures, allegorical figures, flowers, animals, and ornaments, in masses of entanglement, beautiful certainly in colour and form, but of no living interest: in this scheme Northumbrian history is depicted, embodying Northumbrian men and women drawn from the life: the forms and foliage are drawn from the life; and the implements and weapons of antique and Mediæval life, are faithfully copied from local relics once in actual use, lent from private sources for this purpose. It seems to me that this *cortile*, thus rising under the creative genius of its owner and his gifted lady,—so studded with much that modern Northumbrians hold dear as relating to their fathers, and so identified with the present in containing the portraits of eminent local men, and so associated with remembrances of many cultivated minds, the fulness of whose skill has been lavished upon it,—will have an intense and special interest for all time. With a nice propriety the portrait of Dr. Charlton is introduced into the picture in which the Apostle of the North is represented endeavouring to quell the threatening outbreak among his ancestors and their rivals in Rothbury Church. The fine head of St. Cuthbert is a portrait of the Rev. George C. Abbes; and one of the ancient Romans engaged in building the great wall is a likeness of Dr. Bruce. In a word, I would that an art-patron in every county would follow the example set at Wallington.

*Architects and Architecture.*—I must now congratulate this Association upon the prospects of architecture in the North. The corporation of Newcastle, one of the strongest strongholds against sanitary reform, has capitulated. Several extensive works are about to be put in hand. The lightening of the Lancashire tribulations will set new influences to bear. The further enlargement of our local industries will create new sources of power. When Mr. Dobson came into the field, and found no other architect in the county, we may be sure that architecture was at a very low ebb. If a building was wanted, a builder was employed to design and erect it. But now, to the great advantage of the public, if a palace, or a house, or a shop or shop-front, or offices, or a farm, or a pitman's cottage, is wanted, an architect is instructed, who sets builder, joiner, slater, plasterer, and painter to work, in a much better fashion, and with a much more satisfactory result, than if they had no guide. But society is by no means so well regulated in this respect yet as I hope we shall all live to see it. We have only to look at Jarrow, as an instance of the consequence of building too quickly, irrespective of a digested plan, and of inhabiting these quickly-raised fabrics too soon. The large shipbuilding trade suddenly engrafted on to this old Saxon seat of learning and piety has certainly wrought a marvel of disorder. I do not envy the new Board of Health there their task; nor can I see any present prospect of creating order out of the chaos of mud-holes, ballast-heaps, pits, ruts, the ground-levels of the rows of houses on one side of a street higher than those on the other, and brickfields on which bricks are being made and houses built, that mark that Balaclavian site.

* To be continued.

## THE PROFESSORSHIP OF ARCHITECTURE, LONDON UNIVERSITY.

WE understand that Professor Donaldson has sent in his resignation as Professor of Architecture in London University. After energetically and ably discharging the important duties of the office for twenty-three years, the esteemed professor doubtless feels that he may now, fairly, retire, and afford an opening for some younger member of the profession. The professor will doubtless be willing to give for a time some assistance to his successor.

## "COLSTON'S HOUSE," BRISTOL.

STRONG efforts are rightly being made to induce the Town Council of Bristol not to choose for the proposed assize courts the site of the present Guildhall, and the ground in the rear, which would necessitate the destruction of a very interesting ancient house, called,—rightly or wrongly, it is no matter,—"Colston's House." The Bristol Society of Architects have exerted themselves in the matter, and the council of the Institute of British Architects have memorialised the town council in favour of its preservation. At a meeting of the Architectural Museum Committee, on Tuesday last, it was resolved that the president should address a letter to the Town Council to the same effect.

Irrespective of the desirability of saving an ancient monument, a landmark in the history of Bristol, the site is not a good one. We have reason to believe that an opinion in favour of the great superiority of the centre of Queen-square is gaining ground amongst the members of the council.

## SUBSIDENCE OF THE HERBERT HOSPITAL, WOOLWICH.

THE new Herbert Hospital, now nearly completed, on Kidbrook Common, near Woolwich, having shown alarming symptoms of subsidence, an inquiry was instituted, and has been going on for some days. The committee consists of Capt. D. Galton, Under-Secretary of State for War; Col. J. S. Hawkins, commanding Royal Engineer at Woolwich; Capt. W. Newsome, Royal Engineers, divisional commanding officer; Mr. Mennie, Surveyor to the War Department; Mr. Ware and Mr. Tait, clerks of the works; and Mr. G. Myers, the building contractor. The committee have resolved on the necessity of recommending that the eastern pavilion and other portions of the building should be partially reconstructed, and that other measures should be taken to remedy as far as possible defects at the base of the building, many portions of which are tottering and unsafe, in consequence of the yielding of the soil. The cause of this is said to be, that the drainage was laid down below instead of above the layer of concrete and rubble forming the artificial foundation. The occurrence, for which, it is stated, the contractor is in no degree responsible, is exceedingly unfortunate, as the structure, in its present state, is said to have cost the Government upwards of 300,000*l*. The pavilion has been needled up, with a view of under-pinning and forming a more solid foundation without delay.

The choice of the site has always been wondered at by those who were acquainted with its boggy character. If we remember rightly, we printed some objecting letters when the place was first suggested.

## SCULPTURE AND THE ROYAL HORTICULTURAL SOCIETY.

THE Council of the Society have announced the arrangements under which they are willing to receive sculpture on or before the 15th day of April. They say *inter alia*:—"Out of the exhibition of 1865 the Council will make purchases to the value of 500*l*., provided that new and original works of sufficient merit are exhibited under the conditions hereafter stated. As a general rule it is desirable that all works should be finished works in plaster. But works in marble, bronze, terra-cotta, and other materials than plaster may be sent: the price of a separate plaster copy must be stated. The Society especially desires that all works sent in should be distinctly labelled with the name of the subject, and the artist's name and address, together with *the price at which copies may be sold to the public*, in marble, bronze, terra-cotta, and plaster. When a plaster model is purchased by the Council, they desire to be informed at what price the artist will supply another copy in marble, or bronze, or terra-cotta, or any other material. The copyright of making and disposing of other copies in marble, bronze, terra-cotta, &c., will remain with the artist. . . . Artists of all nations are invited to send works."

We fear that the misunderstanding between the Council and the Sculptors' Institute still exists, chiefly, if we are rightly informed, because of the supposed desire of the Council to take the reproduction of a model that might be purchased out of the hands of the author of it. The present conditions do not seem to point absolutely to such a desire. We shall be glad to find these prove satisfactory to sculptors. It is very desirable that means should be taken to popularize sculpture amongst us, and it certainly does seem to us that it ought not to be difficult for sculptors and the Council of the Horticultural Society to work usefully together with that end in view.

## THE HUMAN BREATH AND THE MICROSCOPE.

BY means of what is called the pneumascope the human breath, or rather the crystals deposited by the breath, are shown on the screen at the Polytechnic, and it is made curiously evident that these crystals differ very strikingly according to the individual. In one case they take a dagger or cross form, in another they give a series of dotted lines, and so forth. Whether this may be regulated by the saliva rather than the breath has yet to be settled, with various other similar questions. At present, in fact, no deduction of any value can be made; but the discovery seems to open a fresh field for inquiry, and mny lead to important results.

## THE BATH FORUM HOUSE COMPETITION.

MORE dissatisfaction and complaints! If architects, with their eyes open, will spend their time in these speculations, they may as well make up their minds to hold their tongues when the "toss" goes against them, for no good seems to come of the constant railing that now ensues. Competitors trust implicitly in committees and corporations until the selection is made, taking the chance of the result being in their favour. The moment the decision has been pronounced against them, they point out with sharp pens and loud voices the incompetence, if not dishonesty, of the tribunal they had voluntarily submitted themselves to.

The weak place in the selection of No. 1 design for the Bath Forum House, as the new hotel there is foolishly to be called, is this,—that Mr. C. E. Davies, the successful competitor, is the architect of the corporation who required designs, and, in that capacity, prepared the instructions issued to the other architects who proposed to compete. No architect should place himself in such a position as this. If his design be selected, and even be obviously better than any of the others (as it may well be, seeing that he must know the views and wishes of the employers better than outsiders could do), the popular belief will nevertheless be that the decision was unfair;—that in examining the designs, the man, rather than the merit, had been considered. We have good reason for believing, however, that in the present instance that was not the case.

## SOUTH KENSINGTON HOTEL.

IN this fashionable and healthy locality a new hotel has been opened on a plan which is likely to suit the occasions of families visiting town for a lengthened *séjour*, as well as the tastes of single or more limited parties. Six fine mansions in Queen's Gate-terrace are by adaptation connected by corridors from end to end, having three portals of entrance: these are so arranged as to be divisible into larger or smaller suites, all furnished in a good style and taste, some rooms being of noble proportions, and all ventilated and lighted in a fashion that leaves little to desire.

There are billiard-rooms, coffee and smoking rooms, baths, and every other resource that may be needed by persons who visit London for a season or for a limited time; and the arrangements of the kitchen include the best modern adaptations of stoves.

The peculiar characteristic of this hotel is, that families can live as in a private house, and enjoy the advantages which community only can insure, in the use of a perfect kitchen, and the discipline of a complete staff of waiters and attendants, at comparatively moderate charges. The great influx of residents into London, which increases on all sides, renders the establishment of large hotels a necessity of the time; for, as the numbers of sojourners increase, so also do temporary *voyageurs*; and the improved style of grand hotels in other countries makes it a necessity that the London system should advance also. Higher than Belgravia, and ranging with the Park, the widest open expanse of the western metropolis, this fine district, lately a suburb, but now an integral section, will soon be connected both by railway and by a direct leading route with Westminster; all which improvements will, when carried out, render the South Kensington Hotel an advantage to the public at large.

## FALL OF ARCHED FLOOR, CHARTERED GAS COMPANY'S WORKS, WESTMINSTER.

A FRIGHTFUL accident occurred last Saturday morning at the works of the Chartered Gas Company, Horseferry-road, Westminster. The ground-floor of one of the buildings was used by the workmen as a refreshment-room. It is called "the men's lobby," and is a large room. The ceiling was formed of brick arches, springing from iron girders supported by pillars. Just before twelve o'clock a noise was heard, and down went three of the arches, running the whole width of the building,—covering an area, judging from a glance, of, perhaps, 50 ft. by 30 ft. Four men who were below were much crushed, but, strange to say, not at once killed. In a few minutes there would have been a crowd of men there, the majority of whom must have perished. Whether a girder, or the front wall, serving as abutment, yielded, we do not know. The wall is bulged and cracked,—looks, in fact, very unsafe.

The most careful inquiry should be insisted on in this and all similar cases.

## MESSRS. VICKERS & COMPANY'S NEW DISTILLERY, VICTORIA STREET, WESTMINSTER.

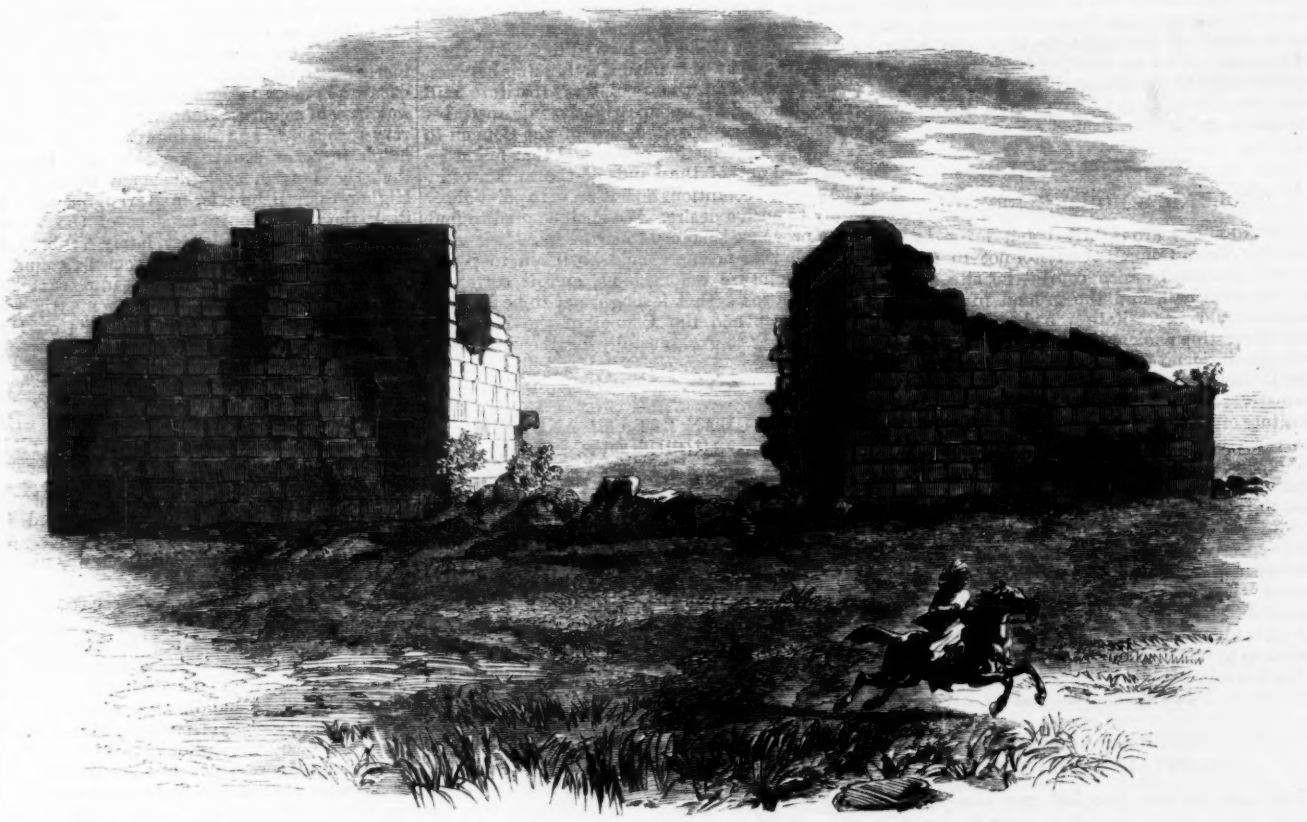
IN our present number we give an illustration of Messrs. Vickers's new distillery, which is in course of erection in Victoria-street, Westminster. The building stands upon a large area of land, having a frontage in Victoria-street of 200 ft. and a depth of 140 ft., with frontages facing Phillips-street and the Horseferry-road. On the ground-floor (speaking as if the building were finished) are British and foreign warehouses, distillery, large counting-house, offices, waiting-halls, stables, and waggon-shed, with a dwelling-house at the north-east angle of the building. The entire basement is converted into commodious cellarage.

The frontage facing Victoria-street and the return end in the Horseferry-road is faced with white Suffolk bricks: all the other frontages are faced with picked stocks with the horizontal bands, and the arches of arcades of coloured bricks. The porch-windows and portions of parapet, string-courses, and area-wall are of Combe Down stone. The columns and panels of the porch are of polished red Aberdeen granite, with foliated caps and moulded bases of stone. The main cornice and the outer arches and labels of the windows are of Portland cement.

The interior walls of the counting-house have recessed arcades, with columns of polished Devonshire marble, with foliated caps and moulded bases of Bath stone. The ceiling is divided into recessed, moulded, and enriched coffers. The height of the counting-house comprises two floors, with a light ornamental gallery all round to serve as communication for the offices on the first floor to the different warehouses.

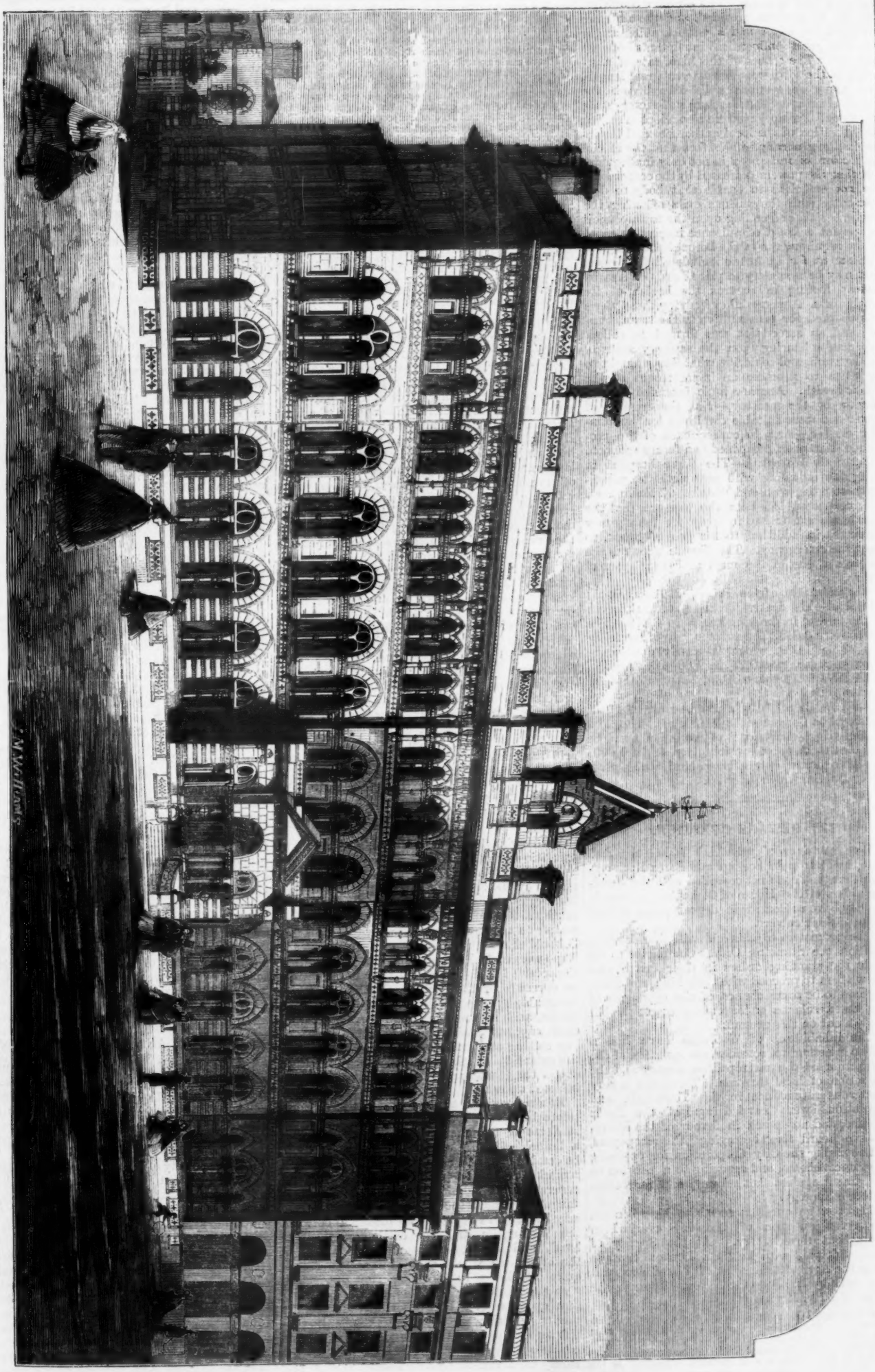
The whole of the buildings are now being erected by Mr. William Downs, builder, from the designs and under the superintendence of Messrs. William J. Mayhew & Calder, architects, Charing-cross. The machinery, plant, and engines will be erected under the superintendence of Mr. F. J. Bramwell, C.E. Mr. Chinnock is the clerk of the works.

## CYRENE AND ITS NEIGHBOURHOOD.



*Gateway in the Western Wall of Ptolemais.*

*A Tomb embellished with Figures in the Northern Necropolis of Cyrene.* [*See p. 83, ante.*



MESSRS. VICKERS & COMPANY'S NEW DISTILLERY, VICTORIA STREET, WESTMINSTER.—MESSRS. WILLIAM J. MAYHEW & CALDER, ARCHITECTS.

## SANITARY MATTERS.

*The Sanitary Condition of Leeds.*—A meeting has been held at Leeds on its sanitary condition. Mr. W. B. Denison presided, and the audience included the mayor and a considerable number of the most influential inhabitants of the borough. The causes of the high rate of mortality in the town were discussed at great length, and many suggestions were offered with the object of bringing about a more satisfactory state of things. Resolutions were also adopted calling the attention of the local authorities and the inhabitants generally to the fact that the official inspection of nuisances is not only inadequate, but that the powers possessed by the corporation are not sufficient to enable that body to deal efficiently with the various evils affecting the public health, and calling upon the town council to appoint a body of nuisance inspectors equal to the requirements of the borough, and to go to Parliament for an Act to include all the powers that may be necessary to place Leeds on a satisfactory footing as regards the health of its inhabitants. A memorial embodying these views was adopted for presentation to the town council; and an association was formed to collect information bearing upon the sanitary state of the borough, and to decide what steps ought to be taken to promote an improvement of the public health. Another topic intended for discussion by the meeting,—viz., the erection of larger and more suitable dwellings for the humbler classes,—was, in consequence of the prolonged discussion, postponed to a future occasion.

*Fever in Waterford.*—The fever hospital is every day crowding with new patients, principally from the town and district of Mullinavat. So unexpected has been the increase, that the workhouse master had to apply for twenty new blankets, in addition to his present stock, to meet the emergency. The disease presents the features of one of the most malignant types of fever.

*The Mortality of the Principal Towns in the Kingdom.*—The deaths for the past week in ten of the largest in the kingdom were 3,469. The births were 3,643. The average rate of mortality was 33 in 1,000, which is nearly double the average mean rate (17 in 1,000) in healthy localities. It is remarkable, however, that, of the ten, London is the healthiest of all, except Salford and Leeds, which give a return of 29 in 1,000, while London gives 30 in 1,000. The palm in the "bad eminence" of mortality must be assigned to Liverpool, which gives 42 in 1,000; but Manchester is not far behind, which gives 40, or Dublin, which gives 39.

## THE SEWAGE QUESTION.

THE examiner of private bills has reported that the Metropolis Sewage and Essex Reclamation Company have not complied with the standing orders of the House of Commons, inasmuch as they have neglected to deposit plans of four miles of their culvert.

The promoters of this bill will thus have to petition the Standing Orders Committee to set aside the standing orders in their favour, and allow them to proceed with their bill; and there appears to be some chance of the opponents of the Essex scheme endeavouring to get the bill thrown out on this ground.

The inhabitants of Woolwich have had a public meeting to consider the question of the utilization of the metropolitan sewage and the reduction of local taxation. There was a very numerous attendance in the Town-hall, and resolutions were carried against the Essex scheme, and not much in favour of the Metropolitan Board for "betraying" the ratepayers, but thanking the City Corporation for opposing the Essex scheme, and agreeing to a petition to parliament against that scheme, and for a committee of inquiry.

The sewage question seems to have become the great question of the day everywhere throughout the country. At the Society of Arts, Adelphi, a paper "On London Sewage from the Agricultural Point of View" was read last week by Mr. John C. Morton. Towards the close of it Mr. Morton said:—

"Although I have not been able to overtake, within the allotted time, all the grounds on which an opinion must be formed, yet the conclusion to which I believe that the agriculturist is led after a study of the subject is, that grass as the produce and ordinary irrigation as the method—both as involving a minimum of labour—are the proper agents by which the conversion, which we all desire, of London sewage into London milk will most profitably be obtained.

Another principal conclusion is, that the profitable conversion of the enormous addition to the grass growth of South Essex, which will follow the use of London sewage, can be expected only through a great and therefore necessarily a gradual extension of the London milk trade.

Lastly, as a help out of this—one of the main difficulties which threaten the immediate profitableness of any scheme for using London sewage—I hope that experiments may be instituted as to the possibility of artificial hay making.

I have made no reference to the nuisance which may be expected from that agricultural use of this sewage that experience elsewhere seems to have recommended. I believe that the efficacy of the sewage as a manure will be dependent, to some extent, on its being already in a putrifying state; and no doubt a certain nuisance will be created. But if any alarmist here, ready charged with a denunciation of these plans on this account, be about to frighten us all with accounts either of putrid miasme and resultant fevers, or of new parasitic enemies, which through rotten sewage, rank and filthy grass, unhealthy cows and unwholesome milk, are thus to find their home in our bodies, breeding there disease and death, I hope that he and all of us will bear in mind that 400 acres of land, treated more wastefully and filthily than any of the London schemes propose, have been for a century and more under the very noses of the Edinburgh people; who have, moreover, been fed for generations on the milk of the cows which have consumed this sewaged grass. If any evils of the kind alleged are in the least to be expected, they must long ago have shown themselves in the death rate of so large a town; which, however, I believe, stands as low as that of any in the country."

In the discussion which followed, Lord Robert Montagu, Mr. Walker (of Rugby), and Mr. H. Webber took part; and Mr. Webber said that, having been resident in Manchester for thirteen years previous to 1856, and his business (that of a cheese factor) having brought him into communication with farmers, he had seen the most astonishing results from the utilization of sewage. He might mention one case in particular within his own knowledge, in which the area of grass land was barely sufficient for the maintenance of seventeen cows, the average yield of which was 2½ cwt. of cheese per annum, and the same area of land was, by the application of sewage, made capable of supporting forty-seven cows, the average yield of which was 3½ cwt. of cheese per annum each. This was sufficient, he thought, to show the great fertilizing property of the sewage. Notwithstanding the great practical knowledge of Mr. Morton on this subject, there were some conclusions which that gentleman had drawn with which he (Mr. Webber) could not concur. He thought, however, that Essex, which might be said to have just been recovered from water, was not the best place for such an experiment as that about to be tried, and that a preferable district was that of Surrey, where they would find a dry parched soil, much better suited for the application of the sewage, which would convert that which was now almost an arid sand into good fertile soil. He believed that to take the sewage into Essex would be a failure, and the result of that failure would be to set aside, for centuries, perhaps, any further attempts to give an agricultural value to this product.

With reference to Mr. Morton's allusions to parasitic enemies, &c., we may here observe that he alludes to a letter addressed to the English public by Dr. Spencer Cobbold, the well-known investigator of parasitic worms, in which he cautions the public against employing sewage matter as manure. By the present system, Dr. Cobbold thinks that billions of eggs of entozoe (tape worms, &c.) are annually swept away into the ocean; but if the accumulation of our sewers be spread over the country, all the conditions favourable to the development of these ova, he thinks, will be promoted: the larvæ will find their way into snails and vegetables, and into our cattle; and entozootic diseases will, from the extent to which they will range, constitute one of the greatest plagues that have ever been inflicted upon this nation.

Entomology and kindred pursuits have heretofore been rather despised than otherwise by students of a higher order of science; but as a branch of sensational science they seem to be coming out with a vengeance. Mr. Morton's remarks as to the utilization of sewage for generations at Edinburgh ought to show how dangerously false such sensational speculations may be; and as regards the question between the land-snails and the cattle on the one hand, and the sea-snails and the fishes on the other, we would suggest that the sea is quite as likely to introduce the unwelcome "guests" into our interiors as the land. If any question of a like order more especially merits attention, we should think it is whether human food produced by help of human excreta can be wholesome; but even that question has surely been settled by the market-garden produce of town suburbs.

At Edinburgh, Mr. Charles Cowan, of Valleyfield, paper manufacturer, has been reading a paper to the Royal Scottish Society of Arts, of which he is the president, on the Sewage of Towns. So satisfied is *he* with the Craigentinny irrigation and its results that he proposes to extend it largely in other neighbourhoods of Edinburgh. There are hundreds of acres of sand, he remarks, on the shores of the Firth of Forth, to the east of the town of Portobello, left dry at low water, which, when embanked and reclaimed, would be well fitted to receive the sewage water; and there is a considerable extent of links at or near Musselburgh, which would give as large a result as that from Craigentinny. As ratepayers, he adds, citizens have a deep interest in the solution of this question. If even 10,000*l.* per annum could be obtained by a sale of a portion of the sewage-water, it would be justly hailed by the citizens as a great success, and would lighten sensibly the Edinburgh police rates.

A second portion of his subject related to the soapy water used by the paper-makers, and what ought to be done with it; but we need not enter into this subject, which he proposes as a problem to the Society of which he is president.

The superintendent of the scavenging and night-soil department of the City of Manchester, Mr. John Wallworth, has addressed a letter to the Lamp and Scavenging Committee on the subject of town sewage. Very naturally Mr. Wallworth thinks, like the shoemaker, that "there is nothing like leather." He looks with an evil eye on water-closets, if not too upon drains and sewers, and goes in for ash-pits. The night-soil has all been nefariously abstracted from the ashpits, and what remains in these has become quite unfit for agricultural use; and what is to be done with it shortly it is hard to say; whereas with the old material back again amongst it, it would make as fine a compost as ever for the use of the farmer.

Our municipal authorities and our ratepayers are everywhere ruminating on the great question of the day. At Slough, just now, preparations are being made for a trial of the sewage-utilization system. The engineer, Mr. Curley, has reported to the local Government Board on the subject, and his report has been approved of. He says there are not many places so well situate for utilising sewage as Slough. He proposes works to cost 5,300*l.* to begin with. Much discussion is going on at Bournemouth on the question of drainage and the disposal of the sewage. Of the existing houses there, it is said, more than one-third are still without drainage, except into cesspools. The Dublin people are astir on the same subject. A highly influential and numerously attended meeting of the inhabitants of Clontarf and the adjoining districts has been held for the purpose of taking measures to oppose the Bill about being introduced into Parliament for utilizing the sewage of the city. This they intend doing on the ground that the plan proposed would prove injurious to the health and comfort of the residents along the shores of Clontarf, Sutton, Baldoyle, &c. In fact, the question is one which is getting so universal in its interest, that it is literally impossible to give any record of what is everywhere being done; and we can only thus now and then pass lightly over a few of the most salient points in the news of the week relating to this all-important subject, as we now do.

## OUR HOMES AND THEIR ORNAMENTS.

ON the 16th ult., Mr. Davidson, head master of the Chester School of Art, gave a lecture under this heading, at the Handbridge Reading-room. After sketching a theory of the early history of building, from Cain downwards, he spoke of what was being done at the present time. "Let but the architect," said he, "feel the responsibility of his noble profession; let him be conscious that it is his glorious privilege to write a page in the history of the human family, more lasting by far than that of a Goldsmith or a Macaulay; that by his work will generations yet unborn judge of the habits and spirit of this period, as we do of the people long since passed away." (?) But even this is not the whole of the responsibility of the architect. It is his task to contribute, not only his assistance to the future, but he has the comfort, the convenience, the health, the morality—nay, the very lives of his fellow-creatures in his hands. It is to the noble spirit of our architects of the present day that we owe our widened streets and our well-ventilated dwellings. They have torn down the rookeries in which the workmen and the poor were huddled together in misery and suffoca-

tion, and have raised commodious and healthy homes for the labouring classes; and these improvements alone will ever remain as a noble contrast to the period when all recorded of what was done for the workmen who built the Pyramids was that an immense amount of money was spent on radishes, onions, and garlic. But we must educate our workmen,—we must teach them that a knowledge of science and art will enable them to execute the work entrusted to their care with greater skill. Let us prove to them, the more they understand of the construction, the better will they carry out the design. Let us improve their homes, and place in each that greatest of all ornaments—the word of God; let us ameliorate their position, and give them healthy recreation: then their spirit will be in their occupation, and it will become a labour of love.

## REPRODUCTION OF NATURAL FORMS IN ART AND MANUFACTURE.

IN the lectures which Mr. Waterhouse Hawkins is delivering on this subject, at the Society of Arts, he has endeavoured to show that the education of the hand, with regard to art, continues to be in excess of that of the mind. To attain to any degree of fame in the higher branches of art, the artist must possess some innate feeling; but as there were those who could write and speak good English without being historians or poets, so there were artists possessing a certain amount of good sense, which, when it had acquired good taste by education, could be of more real service to manufacturers than the highest ideal powers when not submitted to a well-regulated mind. But the artist who was intending to aid manufacturers must obtain some knowledge of the process and materials by which his works were to be multiplied. In the fourth lecture, on the 23rd ult., he called their attention to metal work. The various metals—iron, brass copper, and the precious metals—were so constantly used in the every-day necessities of life, from the cottage to the palace, and in our churches and other public buildings, that there was a vast demand for the combination of art with these materials. Mr. Hawkins sketched on the black canvas several instances of defective designs in metal work, pointing out the paucity of invention which induced our artists to become mere imitators. He censured the incessant use of reproductions of flowers in every material—wood, leather, gutta-percha, porcelain, and iron. He also showed how unfit feathers, flowers, and ribbons were to form part of the decorations of cast-iron gates; and even when water-lilies were introduced very appropriately into a design for a drinking-fountain, he remarked that had the artist exercised his thinking faculties he would not have placed these flowers at the top of a high arch formed by tree branches, in total violation of their natural position, which was floating horizontally on the surface of the water. The lecturer proved the necessity for a knowledge of the process of casting to those who design models for reproduction in metal, by demonstrating the difficulties which were often thrown in the way of the moulder by the inattention of the artist to the requirements of the process. If the designer had merely learnt to draw, and not to model, he would find great difficulty in adapting his designs so as to avoid "undercuts," which render it necessary to divide the mould, thus increasing the labour and adding to the expense without necessarily enhancing the beauty of the work. During the lecture the observations on metal casting were illustrated by a workman, who was making a sand-mould from a group of aurochs. This process the lecturer rendered intelligible by his outlines on the black canvas. At the lecture on Monday, January 30, metal was poured into the mould, to complete the demonstration of the process of metal casting.

THE HALIFAX ARCHITECTS AND BUILDERS AND THE CORPORATION.—On Wednesday, the 1st, a deputation from a meeting of architects, builders, solicitors, and others, waited upon the Halifax Town Council to express their dissatisfaction with a number of the new building by-laws and several clauses in the Corporation Bill to be laid before Parliament. It was urged by the deputation that the by-laws, &c., in question were oppressive, arbitrary, prejudicial to the rights of property, and would increase 25 per cent. the cost of new erections. The various objections were referred to the improvement committee.

## THE ARCHITECTURAL MUSEUM.

A COURSE of lectures will commence early in March. The inaugural lecture will be given by the president, Mr. Beresford Hope, on "The People's Share in Art," when the prizes to art-workmen will be presented. Papers on the following subjects will continue the course:—On "Ancient Christian Towns in Central Syria, recently discovered by Count M. de Vogué," by the Rev. George Williams, B.D.; on "Ornamentation as a Hand-maid to Architecture," by the Rev. Canon Rock, D.D.; on "Bells," by the Rev. J. H. Sperling, M.A.; on "The Precinct of a Gothic Minster," by the Rev. Mackenzie E. C. Walcott, M.A.; and on "Female Proficiency in Architecture and the other Arts," by Mr. F. T. Palgrave.

## RESTORATION OF TUAM CATHEDRAL.

THE Vicar of Tuam, the Rev. C. H. Seymour, has forwarded to us a copy of Mr. Thos. N. Deane's report, with a view to direct attention to an appeal for aid in our advertising columns. The architect says,—"I cannot but feel regret that it is found necessary, from want of funds, to restrain the rapid progress of the work. It has now arrived at a point that it is not desirable to stop at; and I should most strongly urge that a great effort should be made to roof the building."

"Surely," writes Mr. Seymour, "the princely example of Mr. Guinness in Ireland, and of Miss Burdett Coutts, and a host of others, in England, should stimulate some of the rich and prosperous children of our Church to give us the help we so much need. God dispose them so to do."

## SAINT MARGARET'S CHURCH, LEICESTER.

Two stained glass windows, by Mr. A. Gibbs, have recently been placed in the west end of the north and south aisles of this church, a bequest of the late Mr. Highton, of Leicester. The tracery, which is of an elaborate character, by Mr. Scott, in Bath stone, has displaced an abortion of the Batty Langley style, by a Mr. Furmage, some sixty years ago an architect of the town. The decayed ashlar surrounding has all been cut out and replaced with Attleborough stone, and the copings and parapets have been taken off and restored. The north-west buttress, which underwent some few years ago a very indifferent restoration, has been taken wholly down and rebuilt to harmonize with the other parts of the work. The masonry has been executed by Mr. Joseph Yates, of Saint George's, Leicester. The south porch, which is a good specimen of the Perpendicular style, with a fan-groined vaulted roof, now in the last stage of decay, is to be restored by Mr. Yates, under the superintendence of the same architect.

## THE OPERA-HOUSE IN THE HAY-MARKET.—THE "QUEEN'S THEATRE."

IN our remarks last week on the destruction of theatres by fire, we said by the merest slip of the pen that the first Opera-house built in the Haymarket, and burnt down in 1789, was by Novosielski, instead of Vanbrugh. Novosielski, as every one knows, built its successor, the present house. Nash & Repton, however, altered and enlarged the original building in 1819. A correspondent on the subject (J. H. Burn) writes as follows:—

The first opera-house in the Haymarket was built shortly after the accession of Queen Anne, by Sir John Vanbrugh, and named, in compliment to her, the Queen's Theatre. It was destroyed by fire in 1789, as you say, and I have a large highly-finished drawing of the ruins, by William Capon, then scene-painter at the Circus, subsequently the Surrey Theatre. Distinguished by his architectural excellence as a scene-painter, he highly prized this drawing; and those who remember his drawing-room, at his residence, No. 4, Church-street, Westminster, will recollect it, richly framed and pendant on one of the doors.

Novosielski rebuilt the Opera-house with so much skill, that it is still second to no theatre for its superiority as to sound. He also built the King's Concert-room, for the performance of ancient music, in Tottenham-street, Tottenham-court-road; and its acoustic merits were then generally the theme of praise, till the King's mental derangement served to repress these attractions at Court. The concerts were discontinued, and the Pic Nics, under the conduct of Colonel Greville, established there their Amateur Private Theatricals; but the bewitcheries of these high-born aspirants for histrionic fame were dispersed by the patentees of the Theatres Royal, aided by the strong arm of the law. Falling wholly into disuse, a pawnbroker, named Paul, to gratify his wife's humour of reigning supreme, as the Melpomene of the hour, constructed these rooms into a regular theatre; but the lady failed to achieve all she expected, and disappeared. Under Beverley, it opened as the Regency Theatre; and under Chapman & Melrose, as "The Theatre in Tottenham-street;" till Mr. Macfarren, father of the now able musician, fancied much might here be effected in establishing an English Opera. Chapman & Melrose were displaced; and a new name, that of "The Queen's Theatre," was adopted on the suggestion of the writer, simply because it lacked a name, and the Italian Opera was designated "The King's Theatre." Now, Miss Marie Wilton announces the Queen's Theatre, in Tottenham-street, will be opened by her, at Easter, under the appellation of "The Prince of Wales's Theatre," unwisely, as it seems to me. Macfarren failed there, after having produced, in a praiseworthy manner, Handel's "Acis and Galatea;" "Tact;" "The French Spy," with Madame Celeste Elliott, disguised as the Arab boy, which ran fifty nights; and other well-represented pieces. The walls of the Queen's Theatre are those which Novosielski raised.

## THE FALL OF SCHOOL FLOOR, WESTMINSTER.

AT the adjourned inquest on the sufferers by this accident, held on the 6th inst., amongst other evidence, Mr. George Vulliamy said that he was architect to the Board of Works, and had inspected the school. The witness then read a report which he had drawn up for the Board. The chief points of the document were to the effect that the building was generally well constructed. The beams of the floor were of sufficient size. The one that gave way was 20 ft. in span, 13 in. by 13 in., and supported joists tenoned into it. Such a beam should have borne a breaking-weight of 40 tons. The weight on the floor, when the accident happened, was about 7 or 8 tons, and as the next beam (which was cracked) partly supported that weight, the broken beam gave way at a strain of 4 tons. It should have supported 10 tons with safety. But it was American or yellow pine, quite dry, short in the grain, and brittle. It had a longitudinal fracture 5 ft. long. Baltic timber was the only timber that should have been used in such a position. The timber produced, he believed, was yellow pine. In his opinion such timber should not be used to bear any weight or in any flooring. It was only fit for joiners' work. Builders might use such timber, but an architect would specify that Baltic timber should be used in the flooring of such a school-house. Baltic timber had fibre, and gave way always with a great crash. The American timber had little or no fibre or turpentine. For dwelling-houses, 1¼ cwt. per superficial foot was the amount which floors were constructed to sustain. In a building like the school the strength should bear 1¼ cwt., and in a factory the floor should sustain 2 cwt. or 2½ cwt. There was no doubt that the pushing and standing on tip-toe to see the prizes, exposed the beam to the greater stress. But if the beam had been of Baltic timber, it would have been strong enough to bear the pressure put on it. The next beam had cracks in it, and it would have come down if there had been a little greater pressure. The dimensions of the beams, 13 in. by 12½ in., were quite large enough if the proper Baltic timber had been used.

By Mr. New: Witness had calculated for adult weight—140 lb. He ought, perhaps, to have allowed 150 lb. to each person. By the Building Act all schools, &c., were to be inspected by the district surveyor, who was to decide what was necessary for the safety of the public, and in case of a disagreement between him and the architect or builder, the matter should be referred to the Board of Works.

Mr. New read the specification for the building, which stated that "no American pine must be used, but that all joists, &c., should be of Baltic timber."

The Coroner: You attribute the break-down

entirely to the nature of the timber used for the beams?

Witness: Yes, entirely to that cause.

A Juror: Was it not the surveyor's business to see to the description of the timber used?

Witness said that he could hardly state. He was not lawyer enough to decide what was the construction to be put on the words of the Act as to the "manner" of building an edifice.

Mr. George Smith, South-street, Grosvenor-square, said that he was the builder.

The Coroner said that he was bound to tell Mr. Smith, as he was the contractor for the building, that he need not give any evidence that might criminate himself.

Witness said that he had nothing to evade. Mr. Foxhall—since dead—was the architect of the building. Witness had not either the specification or the drawings. In the copy of specifications put in, the timber was specified "Dantzic, Riga, or Memel." That was a very usual provision in such specifications. He had no doubt that his contract would include that provision. By some inadvertence the beams in question were at first put in of a smaller scantling, and he desired them to be taken out. They were taken out, and the present ones were put in in their place. He mentioned this to show, that when his attention was directed to anything wrong, he had the matter set right. Therefore, it was not likely that he would put in American pine, which would be quite as bad as too small scantling. The timber produced was, he had no doubt, Baltic timber; but it had been artificially seasoned, apparently by the gas underneath it. He could produce evidence as to his general way of carrying out his business. He had never used American timber for such work; besides it cost more than Baltic timber. He would undertake to say that the American timber he had bought for twenty years past for joiners' work cost more than Baltic timber would have cost.

By the Jury: He had no doubt that the part of a beam produced was either Memel or Riga timber. It was proper wood to put into such a building.

Mr. Richard Gill, Stanley-road, Hackney, said that he was foreman at the building during the erection. He had not a shadow of a doubt that the timber was Baltic. But he had seen cases in which Baltic timber, having been long in dock, had become very dry. There was a stove nearly under the beam, and it struck witness that it might have had the effect of drying the beam.

The inquiry was adjourned until (this) Friday.

We have little doubt but that the beam is of Baltic timber; probably Dantzic; but it has been curiously acted on.

## NEW BOILER REGULATIONS IN FRANCE.

A ministerial decree has been issued in France relative to steam-boilers. The following is a *resumé* of the chief instructions issued:—

Every boiler, whether new or old, before it is delivered by the constructor, repairer, or seller, is to undergo a proof under the direction of Mining or Ponts et Chaussées engineers. This proof consists in submitting the boiler to a pressure, double of what it is not to exceed when working, for all boilers of a working pressure between half a kilogramme and 6 kilogrammes per square centimètre (7·1 lb. and 85·3 lb. per square inch) exclusively. The surcharge of proof for pressures under these limits is to be constant and equal to half a kilogramme per square centimètre: for pressures higher than the superior limit the surcharge is to be 6 kilogrammes per square centimètre. The proof is to be made by hydraulic pressure kept up as long as is necessary for the examination of all parts of the boiler. If the proof be satisfactory, a stamp indicating in kilogrammes per square centimètre the effective pressure that the steam should not exceed, is to be affixed to the boiler in such a manner as to be visible after it has been put in place. Two safety-valves are to be provided for each boiler, to be weighted so as to allow the steam to escape before, or at least as soon as, the pressure arrives at the quantity marked on the stamp, placed in view of the fireman, showing the pressure of steam in the boiler. All boilers are to have apparatus of sufficient and effective power for supplying water to them.

No steam-boiler, to be employed in a building, is to be established without a declaration being made to the prefect of the department. Certain boilers are to be established only outside a house or workshop having an upper story where workmen are in regular employment. No boiler of the first class is to be placed at a less distance than 3 mètres (9 ft. 10½ in.) from a neighbour's habitation. All furnaces of boilers, of whatsoever class they be, are to consume their own smoke. Six months' delay is accorded to manufacturers to whom no notice was given at the time of authorisation, to execute these last dispositions. The boilers of portable engines are to be submitted to the same proofs, and furnished with the same safety-apparatus, as boilers established in a fixed place; so also are locomotive engines.

## "DIRECT COMMUNICATION BETWEEN LONDON AND CALCUTTA, BY LAND, IN A FORTNIGHT."

My son has drawn my notice to the letter of Mr. Sankey, in your impression of the 21st ult., under the above heading, in which occurs the following passage:—"But the scope of this article is to draw attention to a subject which *I was the first* to bring under public notice, namely, *direct railway communication with India*." My son, jealous that I should not lose what reputation belongs to the origination and promulgation of so grand an idea, suggests that I should not let the above passage in Mr. Sankey's letter pass quite without notice, and hence this letter to you, for which I respectfully ask insertion in your next number.

I have been since the year 1835 intimately connected with railways in all parts of Great Britain and Ireland; I have also had remitted to me important statistical and other investigations in respect to railways in Algeria, Canada, the United States of North America, and Denmark.

About twenty-three years ago I became personally acquainted with the late indefatigable Lieutenant Waghorn, the originator of what is called "the overland route to India." This always struck me as somewhat of a misnomer, and, at the time I mention, induced the thought suddenly to cross my brain of the practicability of constructing a railway direct from Calais, by way of Constantinople, Turkey in Asia, Persia, and Affghanistan, to Calcutta, thus having a really "overland" route, which, at the time, I said might be traversed by express trains in six days. In a few months after I added to my original scheme "an extension to Canton."

At first I was so overwhelmed by the vastness of the scheme as scarcely to dare to mention it except to a very few personal friends, who, of course, set me down as a very dreamer. In 1843-4, however, I commenced to elaborate the first offshoot of my brain, and in the geographical statistics I was aided by Dr. Black and another friend, both of whom I believe are now living.

At this time our great railway mania set in, and I was for several years largely engaged, for Parliamentary purposes, on projected lines all over Great Britain and Ireland, and in course of my travels on these duties I made known my great scheme to numerous engineers and others officially engaged in railway affairs, many of whom are now dead, but still many living. Suffice it to name two of the latter,—Mr. John Collister, C.E., and Mr. Edwin Clark.

To have an unbroken chain of communication from Calais to Calcutta, by the route I have mentioned, I found at least one great physical difficulty to be overcome, namely, the passage of the Bosphorus. This I proposed to effect, for reasons which I need not now state, a little to the north of Constantinople, at the site of the Castles of Europe and Asia. In the year 1846 I mentioned this to Mr. Edwin Clark, who was then actively engaged in the construction of the Britannia Bridge over the Menai Straits, and I and some members of my family well remember his reply, to the effect that I might rest satisfied on that head, for his experience in the great work on which he was engaged enabled him to say that a bridge across the Bosphorus was quite practicable.

Since 1842 I have taken every fitting opportunity of mentioning the project, especially to parties who, I believed, might, in one way or another, aid it. At the outbreak of the Crimean war I had the pleasure of making the acquaintance of General Chesney, under whose command the exploration of the valley of the Euphrates was conducted, by order of Government, more than thirty years since, and to whose Blue Book I am much indebted for valuable information. To this officer I gave an outline of my plan, and we have had several conversations about it since. Again, when crossing the plains of Algeria, in 1858-9, I laid it before M. Eugene Caillaux, Ingénieur des Ponts et Chausées, who expressed much interest in it.

But, sir, the best epitome of the history of this subject is, I believe, to be found in an octavo volume (published by W. H. Allen & Co., in 1857), from the pen of Mr. W. P. Andrew, the chairman of the Scinde Railway, and the early and indefatigable promoter of railways in India generally. To all who take an interest in this great project, the following passages, from page 5 of that work, will be acceptable. Mr. Andrews himself extracts them from an author unknown to me, whom he calls "a recent and able writer:"—

"In this country, ever since the first exploration of the Valley of the Euphrates, by General Chesney, the advantages of such a route to railway or steam communication has not ceased to press itself upon all thoughtful and intelligent minds. Indian railways, which were brought to the notice of Lord Fitzgerald, the president of the Board of Control in 1842, seem, however, to have been the basis of legitimate projects of overland routes, as contra-distinguished from mere visionary schemes.

The first edition of Mr. W. P. Andrews's work 'Indian Railways, as connected with the Power and Stability of the British Empire in the East, the Development of its Resources, and the Civilization of its People, with an Analysis of the Projects now claiming Public Confidence,' appeared early in 1846. This was the first great step which finally led to the project of establishing a communication between the railways of India and those of Europe. The line of Rajmahal, and by the valley of the Ganges, in Bengal, which was originally recommended by Mr. Andrews, was, it is true, for a time suspended by the Mirzapore direct project of Mr. R. M. Stephenson; but it, the Rajmahal line, was that which was ultimately adopted by the authorities, and Mr. R. M. Stephenson was ordered to carry it out. Mr. Andrews's energy was, however, only thrown thereby into a new and more important channel, and he was enabled to carry out a favourite project of a Scinde railway, from whence has arisen the still more recent scheme of a connexion between that railway, the Valley of the Euphrates, and the Mediterranean.

Not that there were any want of projectors at home. Mr. William Pare, of the Seville Iron Works, in Dublin, elaborated a scheme of a Calais, Constantinople, and Calcutta Railway, in 1842; and this was afterwards, in 1845, prolonged to Pekin, under the designation of 'The Atlas Railway.' Mr. Alexander F. Campbell 'proposed a railway from England to India' to the Honourable Board of Directors of the East India Company, in letters and maps, of the 6th September, 1843, 25th March, 1845, and 25th April, 1845; and in 1851 Mr. James Wyld published a map, with the railways laid down as proposed by Mr. Campbell, viz., from Ostend, *vid* Vienna, Belgrade, Constantinople, across Asia Minor to Aleppo, and along the Valley of the Euphrates, skirting the seaboard of Persia, and Beloochistan to Kurrachee, and thence to Calcutta."

And now, sir, although, so far as I am aware, the paragraph above extracted in which my name occurs is the earliest in type in which I am mentioned in connexion with this great project, it will be evident from what I have herein stated, that I by no means hid my candle under a bushel. The first publication I ever saw or heard of on the subject was in 1845 or 1846, in the shape of a small pamphlet by a Mr. Baldwin, of Nant y Glo, in South Wales, which I regret I have not now at hand.

In Mr. Sankey's letter, which has called forth this, I perceive great earnestness, and I shall be happy to join with him and any others who have made the subject a study, in a vigorous attempt to complete the intervening links in the vast chain of direct railway communication between London and Calcutta and Canton. When I first thought on this subject there was not a single mile of railway constructed on the continents of Europe or Asia. Now we have lines stretching to not a great distance from Constantinople on the European side; from Calcutta to the north of India on the other. I believe that Sir R. M. Stephenson is now engaged on a projected line between Calcutta and Canton. I know that lines through Asia Minor have been surveyed, and I have reason to think that the Shah of Persia is desirous of having them extended through his dominions. Surely by a judicious and concentrated effort we may achieve the grand project in its integrity.

William Pare.

*Datchet Lodge, Windsor, 25th Jan.*, 1865.

## METROPOLITAN BOARD OF WORKS REPORT.

The Report of the Metropolitan Board of Works, pursuant to Act, 18th & 19th Vict., c. 120, s. 200, for 1864, has been printed. It includes, besides the chief report by the clerk of the Board, Mr. Pollard, also the report of the engineer, Mr. Bazalgette, as to the Main Drainage and Embankment works, and that of Mr. Vulliamy, the Board's superintending architect, as to metropolitan improvements. The chief report refers to what has been done, in course of the past year, as to the main and local drainage; deodorization of the river; Thames pollution;

metropolitan improvements, including Thames Embankment north and south, new street from Blackfriars Bridge to Mansion House, King-street, Covent-garden, Southwark-street, and Burdett-road; utilization of the sewage; Bills in Parliament as to railways, &c., Southwark Park, metropolitan subway, Thames Embankment and improvement loans, railway construction facilities bill, and poor relief bill; metropolis gas Acts; fire brigade; Parks for Finsbury and Southwark; improvements of local authorities; Gardens in towns protection Act; safe-keeping of petroleum; lines of formation, frontages, and names and numbers of streets; Building Acts, 1855, 1860, and 1861; and as to various other matters, including accounts of receipts and expenditure. The total receipts for the year amounted to 1,487,995*l.*, exclusive of cash balances, 25th March, 1863, amounting to 224,924*l.* The total payments amounted to 1,374,677*l.*

The abstract of accounts of the Board, approved by the auditor, for the year from March 26th, 1863, to March 25th, 1864, and also published, shows, in the general cash account, that there had been received during the year the following sums, viz.:—

| | |
|---|---|
| Sewerage and drainage | £61,814 |
| Metropolis improvements | 23,605 |
| General purposes | 102,279 |
| Fees under Gas Acts | 3,744 |
| And there was besides a balance on hand on March 26th, 1863, of | 36,872 |
| Making a total of | £228,314 |

The payments during the year were—

| | |
|---|---|
| Sewerage and drainage | £107,695 |
| Metropolis improvements | 34,969 |
| General purposes | 56,280 |
| Expense under Gas Acts | 4,288 |
| Leaving a balance on 25th March, 1864, of | 25,082 |
| Total | £107,695 |

Besides the above there are numerous special accounts. The cash account for the metropolitan main drainage shows the following expenditure:—By contractors for works, 775,064*l.*; purchase of property, 9,702*l.*; compensation for damages, &c., 9,021*l.*; professional charges, &c., 5,869*l.*; establishment charges, 7,610*l.*; incidentals, 2,573*l.*; and wages, 8,478*l.*; making a total of 818,319*l.*, and leaving a balance in hand on 25th March, 1864, of 52,483*l.* The Thames Embankment (North) account shows an expenditure during the year of 71,351*l.*, leaving a balance on 25th March, 1864, of 64,380*l.*

## BUILDERS AND ARCHITECTS.

SIR,—In the *Builder* recently appeared the following:—"A correspondent from Dublin comments on the doings of builders, who act in the double capacity of architect and builder:—

"'These,' he says, 'obtaining a job, or securing a client, whichever you like, doubtless tell their employers that they 'need no architect,'—'it is better to leave the arrangement of all such matters as planning, design, specifying, &c. to them.' There is evidently some remedy required here: the question arises and ought to be easy of settlement, whether builders who act in such manner, to the detriment of public taste and to the prejudice of architects, should be disqualified for tendering for the execution of any work with which an architect is entrusted. The practice alluded to is one that deserves suppression, let the individual that practises be ever so trustworthy.'"

As I know that similar sentiments are entertained by second-class architects in London, allow me, as one of those builders, to say a few words in reply. I would premise that these remarks do not apply to the highest class of architects or of builders: the one is protected by his fame, the other by his capital, from severe competition.

Perhaps I can explain my meaning in the shortest way by showing what led me first to keep out architects wherever I could. About twenty years ago I succeeded to a good jobbing business, and I found that whenever any of my customers wanted an alteration to an unusual extent, they employed an architect who, after planning the work, always invited me to tender with others, and took care to include some of the hungry hangers on of the building trade,—I mean those who systematically tender for work below prime cost, trusting to trickery or accident for a profit, and failing that, purging themselves of their responsibilities periodically in the Bankruptcy Court,—and the result invariably was that I lost my customer. This set me to devise a means of counteracting this architectural influence so injurious to my prospects, and I adopted the very line of conduct denounced by your Dublin correspondent. By it I have realised a handsome competence, while nine out of ten of those who commenced when I did, and trusted to architects' favours, have gone to the bad. Architects, as a rule, advise their client that builders, as a class, are a set of rogues, and that it is highly dangerous to have any dealings with them except under the protection of one of themselves. I admit that this is the case with those lowest tenderers whom architects love to patronise, but the class of builders who hold themselves aloof from "neck or nothing" contracts, would no more think of cheating a customer than an architect would of cheating a client. It is different with a builder who gets a contract through giving the lowest tender,—he knows that it is by eliminating all profit, and, perhaps, forgetting some items altogether, that he gets the work,—he never expects to work for the person again except on similar terms, and his whole study from the beginning to the end is how to make the job pay by some indirect means; and, notwithstanding the architect's cleverness, the work is very often very dear in the end. Architects must not expect any good feeling from builders who have a connexion to lose, while they strive everywhere to introduce a system by which the man who takes a pride in doing his work well is pushed aside by the most unprincipled members of his trade. It is impossible that good work and lowest tendering can long be pursued by the same person. I have known several young men begin with it, but their trading has invariably come to an ignominious end. In any other business a tradesman who is known to turn out good work is patronised, although his prices may be high in proportion: not so in our trade where architects have their way. A good tradesman must throw overboard his love for good work, and adopt as far as he can the tactics of the schemer, or he does not get one contract in one hundred that he may tender for. This state of things we owe to second-rate architects, and I advise all honest builders who make self-preservation the first law of nature, never to let an architect get between them and their customers if they can prevent it.

MEASURE AND VALUE.

*** As it is desirable to let some architects know what some builders think of them, we do not hesitate as to printing this letter.

## THE FALL OF CORNICE IN GREAT WINCHESTER STREET, LONDON.

THE superintending architect to the Metropolitan Board of Works having been directed to make an inquiry into the causes which led to the accident at the premises of Messrs. Waterlow, in Great Winchester-street, City, reports:—

"I consider there are three points to be regarded in connexion with this accident. First, that the oversailing works exceed the thickness of the wall from which it sprang; secondly, that the tailing down of the York stone was insufficient; and, thirdly, that there were no struts to steady the overhanging portion during its process of setting; and I may include a fourth, viz., the use made of the projection by the workmen, as a passage from the inside to the outside of the building. I do not attribute the catastrophe to any one of these in particular; doubtless they all in a measure conduced to it; but I think if the corbelling of each course had been more gradual, and if a second or lower stone core had been inserted to act as a thorough bonding course, and if the tailing-irons had been longer, so as to have offered a greater resistance to the weight of the oversailing work, the protection would have been more secure. It should be observed that the blocking-course had not been fixed, or it would by its weight have acted as a counterpoise. But in the absence of this, and considering the greenness of the work, the precaution of applying raking struts should have been taken, and even then the men ought not to have been allowed to pass over the projection. I may, perhaps, be allowed to express an opinion that it is generally very undesirable to project large oversailing cornices either of stone or brick over narrow streets, as in the first place the effect must be lost, and in the next they cause frightful accidents in the event of failure. A projection equal to half the height would in my opinion be sufficient for all useful or ornamental purposes.

GEORGE VULLIAMY."

## THE CONDITION OF THE WORKING MAN.

SIR,—The having seen an account of a lecture given to working men, at Brighton, by Professor Fawcett, has called up some reminiscences of my own, which have caused me to doubt some of his premises. I am much astonished to hear it asserted that the condition of working men is not better now than it was in times gone by. Now, I have a strong claim to be called a working man, having commenced in 1808, and continued to labour with my hands as a stonemason, as apprentice and journeyman, for a space of twenty-four years, and for wages varying from 16s. to 20s. a week. The last two years of my labours in this way were in a small town in the north of England, where the general wages of masons were 16s. a week, and are now 26s. Now, if a man is not in a more comfortable position with 26s. in these days than he was in those, with 16s., I think the fault must be in himself; bread during that time having frequently been more than double its present price, and every other article of food and clothing, with the exception of butcher's meat, was much higher then than now. We certainly had one advantage in those days: we were not under the tyranny of trade-unions, nor the cajolery of glib-tongued delegates, who, unable or unwilling to work honestly for their own living, prey upon those who are simple enough to be gulled by them.

During the whole time that I laboured as a journeyman, I took every opportunity of improving myself, and making myself fit for something higher. Having had small share of schooling, I made up my mind to depend upon myself, and be my own educator, and I am convinced that any journeyman may make himself sufficiently acquainted with mathematics, by properly employing his leisure time in mornings and evenings, to fill any situation in his own line that may occur. I was generally at work by four o'clock in the morning, until work-hours, viz., six o'clock, and again in the evening until nine or ten o'clock with English grammar, arithmetic, algebra, or geometry; and at length an opportunity occurred of improving my condition, and for the last thirty years I have filled many situations of trust and importance, which, I believe, I never should have held had I been under the influence of trade-unions.

If such men as Professor Fawcett would endeavour to persuade men to shake themselves free from all unions, and show each man the necessity of depending upon his own unfettered exertions, they would do a great deal more good to working men than by instigating them to combinations. I should feel much obliged by any man, (delegates excepted) that would make out a clear case of the benefits he has derived from unions and their "strikes." I enclose my address. FIDELE.

## PROVINCIAL NEWS.

*Brighton.*—An official communication has been made to the local Board of Guardians that the town council have complied with their request to employ pauper labourers upon the proposed new eastern Esplanade at the beach under the Marine-parade wall. The subject was referred to the Officers' Duties committee, to consider the legality of employing men who applied for parochial relief on any work except that which strictly belonged to the parish.——The new Workhouse works have been commenced. The directors and guardians have also received from the Poor-law Board the form of supplemental order which they propose to issue for the purpose of authorising the parish to borrow and expend the sum of 7,500*l.*, in addition to the sum of 23,000*l.* already sanctioned, for the erection of the proposed workhouse.

*Willenhall.*—The new building for the Willenhall Literary Institute has been inaugurated. The building has been erected from the designs of Mr. Veall, of Wolverhampton, architect, which were selected from a number submitted in competition. It comprises on the ground-floor a reading-room, 32 ft. by 16 ft.; library, 16 ft. by 14 ft.; conversation-room, 16 ft. by 11 ft.; two class-rooms, each 14 ft. by 10 ft. with residence for attendant. The entrance to this portion of the building is from Lichfield-street; and towards Clemson-street is an entrance-hall and staircase leading to a lecture-hall on the first floor, 50 ft. by 35 ft., capable of accommodating about 400 persons. Attached to this hall are retiring-rooms, cloak-room, lavatory, and other conveniences. The principal staircase at the corner of Lichfield-street and Clemson-street is carried up as a campanile, or tower, finished with a high-pitched slate roof. The design has been executed in coloured bricks and stone, and the structure has no great pretensions to architectural display. The contractor was Mr. W. Evans, of Wolverhampton, the amount of whose estimate was 761*l.*; but this will be increased by the cost of fittings, furniture, &c., to upwards of 1,000*l.*, the greater part of which has already been subscribed. The building is heated by a hot-water apparatus, provided by Mr. Blakemore, of Wednesbury. The gas-fittings were by Mr. Royle; the ornamental pendant brackets, &c., by Messrs. Evans & Webb, of Wolverhampton, and also the wrought-iron fencing and gates in front of the building.

*Burslem* (*Staffordshire*).—The decorations of the Town-hall have been completed. They have been designed by Mr. G. T. Robinson, of Leamington, architect, in the same style as the building itself,—a style which combines in some degree the Italian with the Greek, and which the French call "Neo-Grec." The entrance-hall in the lower part has a diaper pattern in light maroon and black on a deep maroon ground. Above this is a broad band occupied with a Greek "fret" in two greens, and this tone of colour, broken with "citrines," is carried up to the ceiling. The ceiling itself is of a pale azure blue, slightly inclined to green, and is studded with stars of Greek design. The vault is spanned across by bands of ornament, and the mouldings of the cornice and other parts are relieved by colours, and in some instances by ornaments executed in stencil-work. The balustrade is coloured and gilt. The general tone of the walls of the large hall is green, merged in the blue of the ceiling. The pilasters are of a pale orange tone, decorated with ornamentations in violet and green, and their caps picked out in white and gold. The spaces below and above the windows are decorated with devices. The outline of the organ-case is in itself somewhat severe. The board-room walls are covered with a diaper pattern of large dimensions in two greens, maroon, and gold. Into the design the Staffordshire Knot enters largely, and the "dado" of the lower part has deep tones of black and maroon. The other rooms are painted chiefly in plain colours. The works have been carried out by Messrs. Green & King, of London. A new organ for the Assembly-room has been presented by Mr. Davenport, of Maer Hall.

*Lancaster.*—A meeting of the chief merchants, brokers, &c., of Liverpool, convened by the mayor, has been held in the Council Chamber, for the purpose of hearing the statements of the high sheriff (Sir J. P. K. Shuttleworth) and Dr. De Vitré, relative to a projected asylum for idiots in the six northern counties, which it is proposed to erect at Lancaster. There was a very numerous and influential attendance. The chairman said that, in the six northern counties

which had been indicated as the area of the proposed institution, the number of pauper idiots alone was nearly 2,000, while the number of idiots not indigent was great in proportion to their superior position. The central committee in Lancaster had in their eye an eligible site for an asylum, embracing about 40 acres of land near the town of Lancaster. The committee had already received subscriptions to the amount of 9,000*l.*, including 2,000*l.*, a grant, the residue of the Ripley fund. The mayor then read out a list of subscriptions from Liverpool gentlemen,—non-subscribers to the original fund,—amounting to upwards of 4,000*l.* The proceedings terminated with the appointment of a local committee.

## LIVERPOOL.

*Sanitary Matters.*—The prevalence of fever, and the mortality of the town, formed a subject of conversation in the Health Committee last week. Mr. M'Gowen stated that the deaths from zymotic diseases in the previous week were 72 above the average,—in that week, 33; from typhus, 65 above the average in the former week, 55 in the latter week; and from small-pox, 18 above the average in the former, and 28 in the latter. The chairman observed that he had seen in the *Times* that the Registrar-General reported that the mortality in Liverpool was 41 in the 1,000. Dr. Trench, the local medical officer of health, said he supplied the data to the Registrar-General, who must have made his own calculations. He did not think that in the borough last year, as far as he could see, the mortality was as high as 36 in the 1,000. There were, however, periods at the beginning of last year when he was quite convinced it was above 41; but during the summer there had been a falling off in the number of deaths. The average for the year was the proper average: the average for the week really meant nothing.——The authorities are taking measures to diminish overcrowding in the dwellings of the poor; but, with the system of sub-letting to deal with, they appear to be at a loss how best to effect the object in view.

*The Fever Epidemic at Liverpool.*—A report on this subject by Dr. Buchanan has been printed. In his summary as to causation he says:—To sum up the present section of the subject;—the reason why typhus is always present in Liverpool may be defined. Destitution, dirt, and intemperance, with overcrowding and bad ventilation of streets and houses, are the conditions that keep up the disease steadily from year to year. The reasons why typhus has become epidemic are not so clear. The only positive conditions that have been ascertained appear to be these—slight but steady increase in overcrowding, some increase of immigration and of distress at the end of 1861, some increase of vagrancy, and with these some influence in each autumnal season. But these causes are not sufficient to account for the epidemic. The actual mortality from the fever he reports is not great, being only about 6 per cent. of the attacks in home cases, and 14 or 15 per cent. in the worst or hospital cases. The Irish have suffered most severely. We must here remark, as to causation, that the probable increase and prevalence of fever was predicted in the *Builder* so soon as the last summer began to show itself as an unusually dry one. This also occurred on a previous occasion; and, *vice versâ*, an unusually wet summer ushered in an unusually healthy winter a few years since. Typhoid fevers are well known to be produced by foul drains and sewer emanations; and though typhus is more generally attributable to foul air from overcrowding and close apartments, it must at least be greatly aggravated by the typhoid cause, where there are foul drains *added* to overcrowding.

*New Four-wheeled Cabs.*—A Liverpool "Reader" of the *Builder* says,—"We have four-wheeled cabs in Liverpool with the fronts all glass, same as the sides, and the driver sits behind, same as a hansom. These cabs are very superior, and, in fact, look more like a private brougham than a public conveyance. Of course, being public vehicles, the fares are the same as others." He thinks ladies may prefer these to the two-wheeled hansom cabs; but why should gentlemen prefer being pitched head foremost out of a cab, as we have seen both passenger and cabman, from the stumbling of a hansom cab horse? Besides, the hansom cabs are inconvenient and draughty, as well as unsafe. A four-wheeler, with the cabman behind, is certainly an improvement on the hansom in respect to both safety and convenience. It was some such cab we suggested the desirability of having, as an improvement on the present forms of cab.

## CHURCH-BUILDING NEWS.

*Culford Heath* (*Suffolk*).—A church, capable of accommodating from 200 to 300 persons, has been consecrated at Culford Heath, by the Bishop of Ely. The architect was Mr. A. W. Blomfield. The style of the church is Early Pointed. It consists of a nave and chancel, forming a single chamber of uniform dimensions, and a small vestry on the north side, which is only partially separated from the body of the church by the organ. The exterior is of flint rubble, with stone dressings, and bands of cut flint and stone. Under the east window a band of stone-work is inlaid with quatrefoils of cut flint and coloured tiles, and a slight inlaying of tiles also adorns the two buttresses at this end. The roof is high-pitched, and a bell-turret of ornamental timber-work rises from it immediately over the commencement of the chancel. The windows in the nave are three in number, on each side, each of two lights, with circular tracery above: those in the chancel are lancets, with trefoil heads. The east window consists of three trefoil-headed lancets, the middle being higher than the rest, each surmounted by a trefoil-shaped light, the space between the under sides of the upper lights and the tops of the lancet-windows being pierced with small triangular-shaped openings, filled with coloured glass. At the west end a simple lean-to porch of timber-work is surmounted by a rose-window of simple design. Every window is filled with stained glass. The subjects of the east window and the chancel-window are "The Agony in the Garden," "The Last Supper," "The Crucifixion," "Our Lord with the Two Disciples at Emmaus," "The Ministry of Christ," and "The Descent of the Spirit." The windows in the nave illustrate the life of St. Peter, to whom the church is dedicated, the different subjects being in shaded outlines of a pale brown on a white ground, after the manner of Retzsch and other German artists. The rest of each window is filled in with pattern-work on a green ground. The glass is all from the workshops of Messrs. Lavers & Barraud. The heads of the three lights of the east window are supported by columns of Purbeck marble, standing clear, with carved bands and capitals, and of equal height, the head of the centre light being stilted. An inlaying of coloured marbles is also introduced in the vousseirs of the arch which surmounts the whole, and relieves the blank space above the window. The church is paved with tiles by Godwin, of Lugwardine. A barrel organ, by Corps, of Norwich, has its pipes illuminated, and forms a screen for the inclosing of the vestry. The benches are of oak, by Mr. Petch, of Culford; and the whole of the construction has been executed by the builders and workmen connected with the Culford estate. The church has been erected by the Rev. E. B. Benyon, lord of the manor.

*Leyton* (*Essex*).—The new church of All Saints here is cruciform in plan, and consists of nave, 80 ft. 4 in. by 27 ft. 6 in.; chancel, 27 ft. by 20 ft.; transept, 64 ft. by 19 ft. 9 in.; vestry on the south side of chancel; south porch and organ-chamber on north side of chancel, with archways to north transept and chancel. Over the south transept gable is a bell-turret with buttresses, brick arch and moulded and carved saddle-stone with wrought-iron cross. The height of nave to ridge is 49 ft. The style adopted is Middle Pointed Gothic. The nave is divided into three bays. In the centre bay, south side, is an open porch, with shafts of Lizard Serpentine marble, moulded bases, carved caps of the rose and lily, and moulded stone archivolt. The relieving arch is in coloured bricks rubbed and ganged. The other bays are filled in with three-light windows with tracery, the rear arches being in white brick. At the west end is a porch with arches, &c., formed in coloured bricks, and over it a rose window, 14 ft. in diameter, filled in with tracery, the cuspings representing a crown of thorns. Each transept is lighted by a three-light window of lofty proportions in the gable, with traceried heads. The chancel has a large five-light window, with tracery in the head, and two single-light windows in the side, also with traceried heads. The east window is filled in with rich stained glass by Messrs. Clayton & Bell, and is erected as a memorial to three members of the family of the donor, Mr. G. C. Capper, of Leyton. The rose window and the small chancel window are glazed with cathedral and other windows with plain glass. The walls internally are faced with malm brick, with red and white brick bands, &c. The chancel and transept arches are formed of similar materials, the inner ring of the chancel arch being supported on carved stone corbels. The roofs are open, boarded, and stained and varnished. The seats have cut, &c., bench-ends; those to chancel, moulded, and with carved finials. The reredos was presented by Mr. W. Evans, of Walthamstow, and is painted on canvas. The chancel is paved with Minton's tiles, and nave and transept gangways with blue and red Staffordshire arranged in devices, and the porches with York. The nave and transepts are lighted by four coronas, and the chancel with two ornate brass standards. The church will seat 560 persons, and the whole of the works have been executed by Mr. Ennor, of London, for the amount of the contract, 2,147*l.* The architect was Mr. W. Wigginton, also of London.

*Leighton Buzzard* (*Beds*).—At a recent meeting of the committee appointed to carry out the arrangements in connexion with the erection of a new church at North End, Leighton Buzzard, it was unanimously agreed that an architect be advertised for to erect a church, at the cost of 2,500*l.*, to hold 500 persons. Designs to be sent in to the committee.

*Watford.*—The rapid increase of the population around the district church at New Town, Watford, since its erection in 1857, made it necessary that the church should be considerably enlarged. It was, therefore, determined to erect a south aisle, which would not only meet the want for additional accommodation, but add to the uniformity of the church, which is a Gothic building of the Early Decorated style. The plans of Mr. Talbot Bury, of London, were adopted, by which 209 additional sittings would be provided, besides 50 seats for the school children. The contract of Mr. G. Allen, of Watford, builder, was accepted, and the work has been completed at a cost of about 1,200*l.*, and the new aisle has been opened.

*Bloxham* (*Oxon*).—Plans for the restoration of the parish church have been prepared by Mr. Street, architect, and a statement calling for subscriptions has been issued by the parish authorities. The cost will be about 5,000*l.*, of which 2,825*l.* can now be reckoned on, including materials.

*Southampton.*—A new church is about to be built at St. Denys', Southampton, near Netley Abbey railway station, on the South-Western line: this will make the tenth church built in Southampton and its immediate neighbourhood within the last quarter of a century.

*Hales Owen* (*Worcestershire*).—The church bells have been restored. The first bell was cracked in the celebration of one of the numerous decisions of the Law Courts in the great case of Small *v.* Attwood. The inhabitants thought that the winning party ought to have presented the church with a new bell. The harmony of the peal was completely destroyed, about six years since, by the cracking of the sixth bell. This was done by sounding the bell in a peculiar way on Shrove Tuesday. The loss of the bells has been felt to be a great grievance by many of the parishioners, and the result has been a ready response to an appeal issued by the rector and churchwardens. The bells, to supply the place of those which had been rendered useless, have been cast by Messrs. Warner, of London, and the whole peal of eight bells has been heard again in Hales Owen.

*Durdham-down.*—The parish church of St. John the Evangelist, Durdham-down, built about twenty-five years ago, has been enlarged by the addition of transepts and by the extension of the chancel, on the north side of which has been placed an organ-chamber, and on the south side a vestry. The appearance of the interior of the church has otherwise been improved. The flat ceiling has been removed, showing the timbers of the roof, and the church has been reseated throughout, the high pews being replaced by open benches. The seats have also been re-arranged, and the convenience of a centre aisle, as well as of two side aisles, has been afforded. The floors are of Minton's tiles, the aisles and transepts of the plain black and red, while at the altar encaustic tiles have been so used as to represent emblems of the four Evangelists, two on either side of the *Agnus Dei*. The chancel has been fitted up with stalls and a choir. A new heating apparatus has been provided, and

the font has been recarved. The organ has been removed from the south gallery to the chamber provided for it in the chancel. By the enlargements accommodation will be found for 250 additional persons. The architect employed was Mr. Gabriel; the mason, Mr. Case; the carpenter, Mr. Williams; and the painter and glazier, Mr. Edkins. The gas-fittings were supplied by Messrs. Hale & Sons. The enlargement has been carried out in harmony with the other portion of the Perpendicular building. The entire cost of the work has been between 2,000*l.* and 3,000*l.*

*Barton-on-Irwell* (*Lancashire*).—Sir Humphrey de Trafford, bart., is about to erect, at a cost of 20,000*l.*, a parish church at Barton-on-Irwell, to replace the building now used for that purpose.

## Books Received.

*The Marshes of South Italy: A few Words bearing upon Land Speculation and Cotton Growing in Italy,—Malaria and Brigandage.* By J. BAILEY DENTON, C.E. London: Chapman & Hall. 1865.

WERE any land on the face of the earth entitled to be called a Paradise, both morally and physically speaking, surely the very centre of papal power for nearly two thousand years (were this centre the seat of true Christianity) ought to be that blissful region. With a splendid climate, and an intelligent people, of an ancient and powerful origin, and with a superabundance of the priestly element, neither brigandage nor malaria ought to exist in this favoured land. Yet these are still, as they have from time immemorial been, the two great pests of the country, and especially of those parts of it which have been most strictly and exclusively under priest-ridden rule. "By their fruits ye shall know them." The present state of *Christian* Italy in these vital respects, instead of being an advance upon Pagan times, is a shameful retrogression.

Mr. Bailey Denton, in drawing the attention of English capitalists to this subject at the present moment, has done good service to Italy as well as to England. Now that English capital is being extensively engaged in Italian projects, it ought to be clearly understood that an Englishman buying land in the marshes of South Italy has two enemies to contend with, which will prevent his living on the scene of his speculation,—malaria and brigands,—the latter being as likely to deprive him of his money as the former of his life.

"Here and there in the low lands—where natural causes have rendered the owner independent of his neighbours, and of science and mechanical power—may be observed instances of successful cultivation. In other cases may be seen those efforts at improvement, such as the straightening or 'canalisation' of river-courses, where they were tortuous and confined; the cutting of open drains where the force of gravity would maintain a natural discharge; of warping where the rivers are charged with the detritus of the hills, long beneficially carried out under the Government system of 'bonification;' but nowhere is there to be found an instance of the draining of the marshes themselves in which recourse has been had either to mechanical power to lift and eject, or to under-drainage, to discharge the water that stagnates beneath the surface. *In no case, in fact, has any valid attempt been made to drain the seaboard marshes of Italy.* On the contrary, not only have no pains been taken to keep pace with the growing experience of the world, but from the time when the ancients made the Campagna of Rome productive, and the Pontine Marshes habitable; when Livy, Dionysius, and Orosius showed that disease and poverty were consequent on deficient drainage; it appears that the spirit of agricultural enterprise has declined in Italy, the industry and intelligence which made the low lands productive having given place to indigence and crime, the natural attendants of waste and disease.

It is known that the marshy lakes now existing on the seacoast, between Mafredonia and Barletta, were once creeks and harbours, on the banks of which were the cities of Siponto and Salapia, and other flourishing and populous towns, the ruins of which are lost in the vegetation of the existent marshes. Some efforts to reclaim the marshes have, nevertheless, been made in several provinces. Peter of Toledo, in 1592, and Count di Lemos, in 1616, assisted by Dominico Fontana, partially improved the valley of the Clanio. The Princess of Stigliand, in 1638, made an attempt on the great plain of Fondi, which was repeated by Ferdinand IV., who also undertook the valley of the Diano. The present state of these marshes shows the unsatisfactory result of these efforts.

When reflecting on the superior engineering sagacity of the Romans, as evidenced by their works of drainage and water-supply, their sewers, and their aqueducts, the present condition of the plain strikes an English agriculturist with amazement."

Mr. Denton's object is not to deter English capitalists from aiding in the regeneration of Italy, but, on the contrary, to show what must be done to that very end. Until the Italian Government give the requisite powers and inducements, no radical improvement can be made in their marshes, nor can British capital be made remunerative, however impulsively it may be subscribed. The value of drainage, thorough and systematic, has yet to be learnt in Italy.

### VARIORUM.

The *Quarterly Review* for January contains an appreciative paper on William Blake, illustrated from his works.——The leading paper in the *Gentleman's Magazine* for February is one on Aix-la-Chapelle, illustrated, in a letter from Mr. J. H. Parker, who went there for the benefit of his health,—we hope successfully.——The *Social Science Review* for February contains papers on Needlewomen, Punishment for Crimes, Children's Employment Commission, and other similar subjects.——The second issue of the *Englishman's Magazine* (February number) contains a variety of interesting matter, some of it of a semi-religious nature. One paper is on Town Churches, by Mr. G. E. Street, architect.——"Handbook and Appendix of Stations and Sidings." This is a convenient and useful alphabetical arrangement of names of places where there are railway stations and sidings throughout the country. It has been prepared by Mr. H. Oliver and Mr. J. Bockett, of the railway clearing-house. It is published by Smith & Ebbs, Tower-hill, London.——"City Sewers Commission Report on London Railways." Mr. Haywood has reported to the committee upon Improvements on the various railway projects affecting the City, in the new session of Parliament; and the report has been printed. Mr. Haywood states that the total area scheduled within the City for the several projects reported upon is about 31 acres, but of this about 18 acres are already authorised to be taken under existing Acts, leaving 13 acres scheduled for the first time, including 2¼ acres of public way. For the present, the reporter says, "it seems absolutely needful that the commissioners should dissent from the whole of them."——"Laxton's Builders' Price-book for 1865" is the forty-fifth edition, and is too well known to need notice. The present issue contains the whole of the "Metropolitan Building Act," and Notes of Cases and Decisions thereon. It is necessary to mention that in this price-book the charge for bricklayer per day (as for mason) is put down at 6s. 6d., labourer at 4s.; while in Mr. Burnell's, as mentioned recently, 6s. 8d. is allowed for one and 4s. 2d. for the other. This is a serious discrepancy, and should be reconciled.——The *Art-Student* for February is an interesting number, though the illustrations are scarcely up to the mark.——Amongst the illustrations of the new number of "London Society" are two very good ones. Some of the writing, too, is above its average.

## Miscellanea.

BOLTON TOWN-HALL COMPETITION.—According to a correspondent, the authors of the six selected sets of designs, named by us in our last, are Mr. Hill, Leeds; Mr. Turner, Belfast; Mr. Brodrick, Leeds; Mr. Lynn, Belfast; Mr. M'Curdy, Dublin; and Mr. Woodhouse, Bolton.

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which had been indicated as the area of the proposed institution, the number of pauper idiots alone was nearly 2,000, while the number of idiots not indigent was great in proportion to their superior position. The central committee in Lancaster had in their eye an eligible site for an asylum, embracing about 40 acres of land near the town of Lancaster. The committee had already received subscriptions to the amount of 9,000*l.*, including 2,000*l.*, a grant, the residue of the Ripley fund. The mayor then read out a list of subscriptions from Liverpool gentlemen,—non-subscribers to the original fund,—amounting to upwards of 4,000*l.* The proceedings terminated with the appointment of a local committee.

## LIVERPOOL.

*Sanitary Matters.*—The prevalence of fever, and the mortality of the town, formed a subject of conversation in the Health Committee last week. Mr. M'Gowen stated that the deaths from zymotic diseases in the previous week were 72 above the average,—in that week, 33; from typhus, 65 above the average in the former week, 55 in the latter week; and from small-pox, 18 above the average in the former, and 28 in the latter. The chairman observed that he had seen in the *Times* that the Registrar-General reported that the mortality in Liverpool was 41 in the 1,000. Dr. Trench, the local medical officer of health, said he supplied the data to the Registrar-General, who must have made his own calculations. He did not think that in the borough last year, as far as he could see, the mortality was as high as 36 in the 1,000. There were, however, periods at the beginning of last year when he was quite convinced it was above 41; but during the summer there had been a falling off in the number of deaths. The average for the year was the proper average: the average for the week really meant nothing.——The authorities are taking measures to diminish overcrowding in the dwellings of the poor; but, with the system of sub-letting to deal with, they appear to be at a loss how best to effect the object in view.

*The Fever Epidemic at Liverpool.*—A report on this subject by Dr. Buchanan has been printed. In his summary as to causation he says:—To sum up the present section of the subject;—the reason why typhus is always present in Liverpool may be defined. Destitution, dirt, and intemperance, with overcrowding and bad ventilation of streets and houses, are the conditions that keep up the disease steadily from year to year. The reasons why typhus has become epidemic are not so clear. The only positive conditions that have been ascertained appear to be these—slight but steady increase in overcrowding, some increase of immigration and of distress at the end of 1861, some increase of vagrancy, and with these some influence in each autumnal season. But these causes are not sufficient to account for the epidemic. The actual mortality from the fever he reports is not great, being only about 6 per cent. of the attacks in home cases, and 14 or 15 per cent. in the worst or hospital cases. The Irish have suffered most severely. We must here remark, as to causation, that the probable increase and prevalence of fever was predicted in the *Builder* so soon as the last summer began to show itself as an unusually dry one. This also occurred on a previous occasion; and, *vice versâ*, an unusually wet summer ushered in an unusually healthy winter a few years since. Typhoid fevers are well known to be produced by foul drains and sewer emanations; and though typhus is more generally attributable to foul air from overcrowding and close apartments, it must at least be greatly aggravated by the typhoid cause, where there are foul drains *added* to overcrowding.

*New Four-wheeled Cabs.*—A Liverpool "Reader" of the *Builder* says,—"We have four-wheeled cabs in Liverpool with the fronts all glass, same as the sides, and the driver sits behind, same as a hansom. These cabs are very superior, and, in fact, look more like a private brougham than a public conveyance. Of course, being public vehicles, the fares are the same as others." He thinks ladies may prefer these to the two-wheeled hansom cabs; but why should gentlemen prefer being pitched head foremost out of a cab, as we have seen both passenger and cabman, from the stumbling of a hansom cab horse? Besides, the hansom cabs are inconvenient and draughty, as well as unsafe. A four-wheeler, with the cabman behind, is certainly an improvement on the hansom in respect to both safety and convenience. It was some such cab we suggested the desirability of having, as an improvement on the present forms of cab.

## CHURCH-BUILDING NEWS.

*Culford Heath* (*Suffolk*).—A church, capable of accommodating from 200 to 300 persons, has been consecrated at Culford Heath, by the Bishop of Ely. The architect was Mr. A. W. Blomfield. The style of the church is Early Pointed. It consists of a nave and chancel, forming a single chamber of uniform dimensions, and a small vestry on the north side, which is only partially separated from the body of the church by the organ. The exterior is of flint rubble, with stone dressings, and bands of cut flint and stone. Under the east window a band of stone-work is inlaid with quatrefoils of cut flint and coloured tiles, and a slight inlaying of tiles also adorns the two buttresses at this end. The roof is high-pitched, and a bell-turret of ornamental timber-work rises from it immediately over the commencement of the chancel. The windows in the nave are three in number, on each side, each of two lights, with circular tracery above: those in the chancel are lancets, with trefoil heads. The east window consists of three trefoil-headed lancets, the middle being higher than the rest, each surmounted by a trefoil-shaped light, the space between the under sides of the upper lights and the tops of the lancet-windows being pierced with small triangular-shaped openings, filled with coloured glass. At the west end a simple lean-to porch of timber-work is surmounted by a rose-window of simple design. Every window is filled with stained glass. The subjects of the east window and the chancel-window are "The Agony in the Garden," "The Last Supper," "The Crucifixion," "Our Lord with the Two Disciples at Emmaus," "The Ministry of Christ," and "The Descent of the Spirit." The windows in the nave illustrate the life of St. Peter, to whom the church is dedicated, the different subjects being in shaded outlines of a pale brown on a white ground, after the manner of Retsch and other German artists. The rest of each window is filled in with pattern-work on a green ground. The glass is all from the workshops of Messrs. Lavers & Barraud. The heads of the three lights of the east window are supported by columns of Purbeck marble, standing clear, with carved bands and capitals, and of equal height, the head of the centre light being stilted. An inlaying of coloured marbles is also introduced in the voussoirs of the arch which surmounts the whole, and relieves the blank space above the window. The church is paved with tiles by Godwin, of Lugwardine. A barrel organ, by Corps, of Norwich, has its pipes illuminated, and forms a screen for the inclosing of the vestry. The benches are of oak, by Mr. Petch, of Culford; and the whole of the construction has been executed by the builders and workmen connected with the Culford estate. The church has been erected by the Rev. E. R. Benyon, lord of the manor.

*Leyton* (*Essex*). — The new church of All Saints here is cruciform in plan, and consists of nave, 80 ft. 4 in. by 27 ft. 6 in.; chancel, 27 ft. by 20 ft.; transept, 64 ft. by 19 ft. 9 in.; vestry on the south side of chancel; south porch and organ-chamber on north side of chancel, with archways to north transept and chancel. Over the south transept gable is a bell-turret with buttresses, brick arch and moulded and carved saddle-stone with wrought-iron cross. The height of nave to ridge is 49 ft. The style adopted is Middle Pointed Gothic. The nave is divided into three bays. In the centre bay, south side, is an open porch, with shafts of Lizard Serpentine marble, moulded bases, carved caps of the rose and lily, and moulded stone archivolt. The relieving arch is in coloured bricks rubbed and gauged. The other bays are filled in with three-light windows with tracery, the rear arches being in white brick. At the west end is a porch with arches, &c., formed in coloured bricks, and over it a rose window, 14 ft. in diameter, filled in with tracery, the cuspings representing a crown of thorns. Each transept is lighted by a three-light window of lofty proportions in the gable, with traceried heads. The chancel has a large five-light window, with tracery in the head, and two single-light windows in the side, also with traceried heads. The east window is filled in with rich stained glass by Messrs. Clayton & Bell, and is erected as a memorial to three members of the family of the donor, Mr. G. C. Capper, of Leyton. The rose window and the small chancel window are glazed with cathedral and other windows with plain glass. The walls internally are faced with malm brick, with red and white brick bands, &c. The chancel and transept arches are formed of similar materials, the inner ring of the chancel arch being supported on carved stone corbels. The roofs are open, boarded, and stained and varnished. The seats have cut, &c., bench-ends; those to chancel, moulded, and with carved finials. The reredos was presented by Mr. W. Evans, of Walthamstow, and is painted on canvas. The chancel is paved with Minton's tiles, and nave and transept gangways with blue and red Staffordshire arranged in devices, and the porches with York. The nave and transepts are lighted by four coronas, and the chancel with two ornate brass standards. The church will seat 560 persons, and the whole of the works have been executed by Mr. Ennor, of London, for the amount of the contract, 2,147*l.* The architect was Mr. W. Wigginton, also of London.

*Leighton Buzzard* (*Beds*).—At a recent meeting of the committee appointed to carry out the arrangements in connexion with the erection of a new church at North End, Leighton Buzzard, it was unanimously agreed that an architect be advertised for to erect a church, at the cost of 2,500*l.*, to hold 500 persons. Designs to be sent in to the committee.

*Watford.*—The rapid increase of the population around the district church at New Town, Watford, since its erection in 1857, made it necessary that the church should be considerably enlarged. It was, therefore, determined to erect a south aisle, which would not only meet the want for additional accommodation, but add to the uniformity of the church, which is a Gothic building of the Early Decorated style. The plans of Mr. Talbot Bury, of London, were adopted, by which 209 additional sittings would be provided, besides 50 seats for the school children. The contract of Mr. G. Allen, of Watford, builder, was accepted, and the work has been completed at a cost of about 1,200*l.*, and the new aisle has been opened.

*Bloxham* (*Oxon*).—Plans for the restoration of the parish church have been prepared by Mr. Street, architect, and a statement calling for subscriptions has been issued by the parish authorities. The cost will be about 5,000*l.*, of which 2,825*l.* can now be reckoned on, including materials.

*Southampton.*—A new church is about to be built at St. Denys', Southampton, near Netley Abbey railway station, on the South-Western line: this will make the tenth church built in Southampton and its immediate neighbourhood within the last quarter of a century.

*Hales Owen* (*Worcestershire*).— The church bells have been restored. The first bell was cracked in the celebration of one of the numerous decisions of the Law Courts in the great case of Small *v.* Attwood. The inhabitants thought that the winning party ought to have presented the church with a new bell. The harmony of the peal was completely destroyed, about six years since, by the cracking of the sixth bell. This was done by sounding the bell in a peculiar way on Shrove Tuesday. The loss of the bells has been felt to be a great grievance by many of the parishioners, and the result has been a ready response to an appeal issued by the rector and churchwardens. The bells, to supply the place of those which had been rendered useless, have been cast by Messrs. Warner, of London, and the whole peal of eight bells has been heard again in Hales Owen.

*Durdham-down.*—The parish church of St. John the Evangelist, Durdham-down, built about twenty-five years ago, has been enlarged by the addition of transepts and by the extension of the chancel, on the north side of which has been placed an organ-chamber, and on the south side a vestry. The appearance of the interior of the church has otherwise been improved. The flat ceiling has been removed, showing the timbers of the roof, and the church has been reseated throughout, the high pews being replaced by open benches. The seats have also been rearranged, and the convenience of a centre aisle, as well as of two side aisles, has been afforded. The floors are of Minton's tiles, the aisles and transepts of the plain black and red, while at the altar encaustic tiles have been so used as to represent emblems of the four Evangelists, two on either side of the *Agnus Dei*. The chancel has been fitted up with stalls and a choir. A new heating apparatus has been provided, and

the font has been recarved. The organ has been removed from the south gallery to the chamber provided for it in the chancel. By the enlargements accommodation will be found for 250 additional persons. The architect employed was Mr. Gabriel; the mason, Mr. Case; the carpenter, Mr. Williams; and the painter and glazier, Mr. Edkins. The gas-fittings were supplied by Messrs. Hale & Sons. The enlargement has been carried out in harmony with the other portion of the Perpendicular building. The entire cost of the work has been between 2,000*l.* and 3,000*l.*

*Barton-on-Irwell* (*Lancashire*).—Sir Humphrey de Trafford, bart., is about to erect, at a cost of 20,000*l.*, a parish church at Barton-on-Irwell, to replace the building now used for that purpose.

## Books Received.

*The Marshes of South Italy: A few Words bearing upon Land Speculation and Cotton Growing in Italy,—Malaria and Brigandage.* By J. BAILEY DENTON, C.E. London: Chapman & Hall. 1865.

WERE any land on the face of the earth entitled to be called a Paradise, both morally and physically speaking, surely the very centre of papal power for nearly two thousand years (were this centre the seat of true Christianity) ought to be that blissful region. With a splendid climate, and an intelligent people, of an ancient and powerful origin, and with a superabundance of the priestly element, neither brigandage nor malaria ought to exist in this favoured land. Yet these are still, as they have from time immemorial been, the two great pests of the country, and especially of those parts of it which have been most strictly and exclusively under priest-ridden rule. "By their fruits ye shall know them." The present state of *Christian* Italy in these vital respects, instead of being an advance upon Pagan times, is a shameful retrogression.

Mr. Bailey Denton, in drawing the attention of English capitalists to this subject at the present moment, has done good service to Italy as well as to England. Now that English capital is being extensively engaged in Italian projects, it ought to be clearly understood that an Englishman buying land in the marshes of South Italy has two enemies to contend with, which will prevent his living on the scene of his speculation,—malaria and brigands,—the latter being as likely to deprive him of his money as the former of his life.

"Here and there in the low lands—where natural causes have rendered the owner independent of his neighbours, and of science and mechanical power—may be observed instances of successful cultivation. In other cases may be seen those efforts at improvement, such as the straightening or 'canalisation' of river-courses, where they were tortuous and confined; the cutting of open drains where the force of gravity would maintain a natural discharge; of warping where the rivers are charged with the detritus of the hills, long beneficially carried out under the Government system of 'bonification;' but nowhere is there to be found an instance of the draining of the marshes themselves in which recourse has been had either to mechanical power to lift and eject, or to under-drainage, to discharge the water that stagnates beneath the surface. *In no case, in fact, has any valid attempt been made to drain the seaboard marshes of Italy.* On the contrary, not only have no pains been taken to keep pace with the growing experience of the world, but from the time when the ancients made the Campagna of Rome productive, and the Pontine Marshes habitable; when Livy, Dionysius, and Orosius showed that disease and poverty were consequent on deficient drainage; it appears that the spirit of agricultural enterprise has declined in Italy, the industry and intelligence which made the low lands productive having given place to indigence and crime, the natural attendants of waste and disease.

It is known that the marshy lakes now existing on the seacoast, between Mafredonia and Barletta, were once creeks and harbours, on the banks of which were the cities of Siponto and Salapia, and other flourishing and populous towns, the ruins of which are lost in the vegetation of the existent marshes. Some efforts to reclaim the marshes have, nevertheless, been made in several provinces. Peter of Toledo, in 1592, and Count di Lemos, in 1616, assisted by Dominico Fontana, partially improved the valley of the Clanio. The Princess of Stigliand, in 1638, made an attempt on the great plain of Fondi, which was repeated by Ferdinand IV., who also undertook the valley of the Diano. The present state of these marshes shows the unsatisfactory result of these efforts.

When reflecting on the superior engineering sagacity of the Romans, as evidenced by their works of drainage and water-supply, their sewers, and their aqueducts, the present condition of the plain strikes an English agriculturist with amazement."

Mr. Denton's object is not to deter English capitalists from aiding in the regeneration of Italy, but, on the contrary, to show what must be done to that very end. Until the Italian Government give the requisite powers and inducements, no radical improvement can be made in their marshes, nor can British capital be made remunerative, however impulsively it may be subscribed. The value of drainage, thorough and systematic, has yet to be learnt in Italy.

### VARIORUM.

The *Quarterly Review* for January contains an appreciative paper on William Blake, illustrated from his works.——The leading paper in the *Gentleman's Magazine* for February is one on Aix-la-Chapelle, illustrated, in a letter from Mr. J. H. Parker, who went there for the benefit of his health,—we hope successfully.——The *Social Science Review* for February contains papers on Needlewomen, Punishment for Crimes, Children's Employment Commission, and other similar subjects.——The second issue of the *Englishman's Magazine* (February number) contains a variety of interesting matter, some of it of a semi-religious nature. One paper is on Town Churches, by Mr. G. E. Street, architect.——"Handbook and Appendix of Stations and Sidings." This is a convenient and useful alphabetical arrangement of names of places where there are railway stations and sidings throughout the country. It has been prepared by Mr. H. Oliver and Mr. J. Bockett, of the railway clearing-house. It is published by Smith & Ebbs, Tower-hill, London.——"City Sewers Commission Report on London Railways." Mr. Haywood has reported to the committee upon Improvements on the various railway projects affecting the City, in the new session of Parliament; and the report has been printed. Mr. Haywood states that the total area scheduled within the City for the several projects reported upon is about 31 acres, but of this about 18 acres are already authorised to be taken under existing Acts, leaving 13 acres scheduled for the first time, including 2½ acres of public way. For the present, the reporter says, "it seems absolutely needful that the commissioners should dissent from the whole of them."——"Laxton's Builders' Price-book for 1865" is the forty-fifth edition, and is too well known to need notice. The present issue contains the whole of the "Metropolitan Building Act," and Notes of Cases and Decisions thereon. It is necessary to mention that in this price-book the charge for bricklayer per day (as for mason) is put down at 6s. 6d., labourer at 4s.; while in Mr. Burnell's, as mentioned recently, 6s. 8d. is allowed for one and 4s. 2d. for the other. This is a serious discrepancy, and should be reconciled.——The *Art-Student* for February is an interesting number, though the illustrations are scarcely up to the mark.——Amongst the illustrations of the new number of "London Society" are two very good ones. Some of the writing, too, is above its average.

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INDIA.—The Lucknow Exhibition was opened on the 24th December. All the capital for the Great Exhibition in Bombay has been subscribed, and all the shares have been taken up.

A CRYSTAL PALACE AND EXHIBITION AT OPORTO.—An exhibition is to be held this year at Oporto. A building, mainly composed of glass, will be erected on the eminence of Torre de Marca, near the town; and it is proposed to open the exhibition on the 21st of August.

BURNING OF THE SMITHSONIAN INSTITUTE AT WASHINGTON.—On the 24th ult., a fire broke out in the Smithsonian Institute building at Washington, in the loft above the picture gallery, between the ceiling and the roof, caused, it is believed, by a defective flue. The loss is very serious. The top of the principal tower and several of the battlements fell.

BURSTING OF A TUNNEL.—A canal, which runs over a tunnel of the Great Western Railway, between the Soho and Hockley stations, near Birmingham, burst through the roof, and the water, escaping from the mouth of the tunnel nearest to Birmingham, flooded the railway station and the adjacent low grounds. An immense amount of damage has been done, and railway communication along the line will be stopped for some days. No life was lost.

TELEGRAPHIC.—The directors of the Electric and International Telegraph Company report that the progressive advance in the revenue of the company has continued, with slight interruption, during the six months just completed. The net profit for the half-year is 54,076*l.*, against 50,568*l.* in the corresponding period of 1863. The directors again recommend a dividend of 4 per cent. for the half-year on the stock and shares of the company. This will leave a balance of 14,831*l.* to be added to the trust fund, which will then amount to 54,672*l.*

ALBERT BELLS FUND, ADELAIDE.—The committee had a meeting on the 18th ult., when the secretary reported the amount in the National Bank to the credit of the fund 223*l.* 4s. 10d., and the total amount of subscriptions of the few lists that had come in, 472*l.* 10s. 4d. It was resolved that the mayor and town clerk be authorised to order the bells of Messrs. Warner & Sons (London), as before directed, so soon as the sum of 500*l.* is placed to the credit of the fund with the Bank. The collectors were urged to collect the sums at an early date, to enable the mayor to send the order for the bells, if possible, by the next mail.

"METROPOLITAN DISTRICT RAILWAY."—This is the title of a new undertaking introduced by an influential board of direction. The object is to complete the "inner circle" of the metropolitan lines of railway lately authorized by Parliament, by means of the line to be formed between the City and the West-End of London *vid* the Thames Embankment. Ultimately the line will extend from Trinity-square, Tower-hill, to Kensington, thus completing the "inner circle." There will be eleven stations upon the line. The capital required is 3,600,000*l.*, of which the first issue will be 2,000,000*l.*, divided into provisional scrip certificates to bearer of 100*l.* each, and interest at the rate of 6 per cent. per annum will be allowed on the fully paid-up capital during construction. The direction includes the names of the Earl of Devon; Lord Naas, M.P.; the Hon. F. Lygon, M.P.; Mr. C. Gilpin, M.P.; Sir H. Drummond Wolff, K.C., M.G.; and others.

RESTORATION OF SALISBURY CATHEDRAL.—At a meeting of the Restoration Committee, held last Thursday, the Dean of Salisbury reported the progress which has been made in the preliminary works recommended by Mr. Gilbert Scott, before commencing operations in the tower. The foundations of the building have been underpinned, the basement moulding restored, and the drainage completed. Eight of the flying buttresses have had to be entirely rebuilt, while the others have been repaired. The only portion, in fact, of these preliminary works remaining unfinished are the lead covering of the roof, and the restoration of the marble shafts, capitals, and bases. These were originally of Purbeck marble, but Mr. Scott has recommended the substitution of Devonshire marble, as being equal in colour to the former, more durable, and less costly. Mr. Scott explained the principles on which he proposes to deal with the most vital part of the whole work,—viz., the strengthening of the tower and spire. He said he hoped shortly to submit detailed plans and specifications for the work.

FALL OF A NEW BUILDING AT BREWOOD.—The roofs of two dwelling-houses, just erected in School-lane, Brewood, but not completed, have given way, a great portion of the materials falling upon an adjoining locksmith's shop, breaking in the roof of that also. An old man was nearly buried beneath the ruins. He was speedily extricated, but was found to be severely injured. The cause of the accident appears to have been the slender nature of the materials which supported the roof, and the weight of snow upon it.

DUNFERMLINE PALACE.—The question of the ownership of the ancient and historic Palace of Dunfermline has been decided in the First Division of the Scottish Court of Session. Mr. Hunt, of Pittencrief, claimed the ownership, as against the Crown: but his claim was declared invalid by an interlocutor pronounced by Lord Mackenzie, in 1863, which found that, "the said royal palace, or ruins thereof, belonged to her Majesty and her royal successors, and were a part of the patrimony and property of the Crown." The judgment of Lord Mackenzie, however, has just been reversed by the first division of the Court of Session.

ILLUMINATED CHARTER ROLL OF WATERFORD, TEMP. RICHARD II.—Amongst the muniments of Waterford, is preserved an ancient illuminated roll, of great interest and beauty, comprising all the early charters and grants to the City of Waterford, from the time of Henry II. to Richard II., including Edward III. when young, and again at an advanced age: a full-length portrait of each king, whose charter is given, adorns the margin. These portraits vary from 3 in. to 9 in. in length, some in armour, and some in robes of state. It deserves to be rescued from obvious danger, by the publication of fac-similes of all the illuminations, and this it has been determined to do as soon as 400 subscribers are obtained. It will be edited by the Rev. James Graves.

## TENDERS.

For the second portion of Messrs. Woodall & Son's carriage factory, in Orchard-street and Granville-place, Portman-square. Mr. R. L. Roumieu, architect. Quantities supplied by Messrs. Welch & Atkinson:—

| | |
|---|---|
| Piper & Wheeler | £11,490 0 0 |
| Mansfield & Son | 11,374 0 0 |
| Newman & Mann | 11,184 0 0 |
| Dove, Brothers | 10,875 0 0 |
| Holland & Hannen | 10,847 0 0 |
| Trollope & Son | 10,570 0 0 |
| T'Anson | 10,554 0 0 |
| Longmire & Burge | 10,456 0 0 |
| Keyes & Head | 10,428 0 0 |
| Browne & Robinson | 10,342 0 0 |
| Myers & Son | 10,329 0 0 |
| Rigby (accepted) | 10,036 0 0 |

For alterations and additions to Reed Court, near Rochester, for Mr. John Nash. All bricks provided. Mr. Henry Andrews, architect:—

| | |
|---|---|
| Naylar & Son (accepted) | £775 0 0 |

For enlargement of and alterations to Eden Lodge, Beckenham. Mr. Charles Marshall, architect:—

| | |
|---|---|
| Myers & Son | £1,752 0 0 |
| Sharpington & Cole | 1,437 0 0 |
| Colls & Son | 1,300 0 0 |

For a house, Battersea Rise. Mr. G. H. Page, architect:—

| | |
|---|---|
| Kendall | £1,147 0 0 |
| Thorton | 1,122 0 0 |
| Champion | 1,010 10 0 |
| Brighton | 1,010 0 0 |
| Bass | 964 0 0 |
| Heath | 820 0 0 |

For building a villa, at Lankton, near Tunbridge Wells, for Messrs. Goodrhams. Mr. W. Bond, architect. Quantities supplied by Mr. A. Vicars:—

| | |
|---|---|
| Pink (carpenter) | £478 0 0 |
| Walker (bricklayer) | 319 10 0 |
| Mason (plasterer) | 210 0 0 |
| Winnifrith (painter) | 167 0 0 |
| Catt (smith, &c.) | 48 10 0 |

For a house and offices, at Tunbridge Wells, for Mr. J. Blaxland. Mr. W. Bond, architect. Quantities by Mr. A. Vicars. Lowest tenders:—

| | |
|---|---|
| *Carpenter's Work.* | |
| Peerless & Hartridge | £468 13 0 |
| *Bricklayer's Work.* | |
| Mercer & Camfield | £405 0 0 |
| *Mason's Work.* | |
| Mercer & Camfield | £131 10 0 |
| *Plasterer's Work.* | |
| Mason | £248 13 0 |
| *Smith's Work.* | |
| Gilbert | £69 0 0 |
| *Painter's, &c., Work.* | |
| Taylor | £186 7 0 |

For repairing, decorating, and enlarging stables, to house at Peckham Rye. Mr. Nicholas Lake, architect:—

| | |
|---|---|
| Colls & Co. | £445 0 0 |
| Smith (including Minton's tiles) | 337 15 0 |
| Brighton | 336 5 0 |

For building St. Barnabas Church, Bell-street, Edgware-road. Mr. A. W. Blomfield, M.A., architect. Quantities supplied by Mr. J. A. Bunker:—

| | |
|---|---|
| Bird | £4,450 0 0 |
| Patman & Fotheringham | 4,175 0 0 |
| Ebbs & Sons | 3,888 0 0 |
| Turner & Sons | 3,865 0 0 |
| Child & Son | 3,860 0 0 |
| Browne & Robinson | 3,840 0 0 |
| Longmire & Burge | 3,787 0 0 |
| Dove | 3,595 0 0 |
| Foster (accepted) | 3,440 0 0 |

For the erection of residences at Tulse Hill, Brixton, for Mr. E. J. Bailey. Mr. Fred. Chadwick, architect:—

| | |
|---|---|
| Walker & Co. (accepted) | £10,500 0 0 |

For a villa, at Tunbridge Wells, for Mr. W. M. Hellyer. Mr. W. Bond, architect:—

| | |
|---|---|
| Walker | £945 0 0 |

For additions and alterations to No. 474, New Oxford-street. Mr. Thos. W. Willis, architect:—

| | |
|---|---|
| Henshaw (accepted) | £500 0 0 |

For eight additional almshouses, at Barnet, for the Worshipful Company of Leather Sellers. Mr. Samuel Hill, architect:—

| | |
|---|---|
| Ashby & Horner | £2,967 0 0 |
| Read | 2,889 0 0 |
| Ladds | 2,870 0 0 |
| Myers | 2,848 0 0 |
| Colman | 2,720 0 0 |
| Cleaver | 2,610 0 0 |
| Dove, Brothers | 2,585 0 0 |

For the erection of twelve houses, in Kennington-lane, for Mr. R. Shepherd. Mr. Henry Jarvis, architect:—

| | New Houses. | Credit Old Materials. |
|---|---|---|
| Thompson | £4,170 0 0 | £200 0 0 |
| Marsland & Sons | 4,056 0 0 | 186 0 0 |
| Stone & Pearce | 4,000 0 0 | 400 0 0 |
| Kent | 3,990 0 0 | 395 0 0 |
| Hardiman & Sandon | 3,256 0 0 | 165 0 0 |
| Coleman | 3,320 0 0 | 240 0 0 |
| Heath | 3,195 0 0 | 250 0 0 |
| Sawyer | 2,688 0 0 | 500 0 0 |

For alteration and new side galleries, for Studley-road Wesleyan Chapel. Mr. W. W. Pocock, architect. Quantities not supplied:—

| | |
|---|---|
| Thompson | £446 0 0 |
| Clemence | 439 0 0 |
| Ring & Wainman | 398 0 0 |
| Stone | 361 0 0 |
| Dove, Brothers | 335 0 0 |

For Pangbourne Church, Berks. Mr. W. H. Woodman, architect:—

| | Nave, &c. | Tower. | Spire. |
|---|---|---|---|
| Matthews | £3,476 | £1,271 | £410 |
| Wheeler | 3,489 | 1,232 | 410 |
| Kendall | 3,210 | 1,187 | 400 |
| Sims & Martin | 3,143 | 1,194 | 331 |
| Sawyer | 2,991 | 1,098 | 563 |
| Briant | 3,148 | 876 | 334 |
| Hollis | 3,050 | 1,000 | 270 |
| Thomas | 2,905 | 975 | 260 |
| Reavell & Sons | 2,742 | 860 | 258 |

For alterations and additions to the dwelling-house belonging to Mr. Moses, at Beddington Junction, Surrey. Mr. N. J. Joseph, architect. Quantities not supplied:—

| | |
|---|---|
| Hardiman & Sandon | £740 0 0 |
| King & Son | 736 0 0 |
| Kilby | 732 0 0 |
| Conder | 723 0 0 |
| Newman & Mann | 593 0 0 |

## TO CORRESPONDENTS.

Several articles in type are unavoidably postponed.

"OUR DOMESTIC FIREPLACES."—Seven letters have been received from stove-makers and gentlemen who have used certain stoves, and will have attention. We cannot find space for testimonials.

Provincial Architect (works for the Architectural Exhibition must be sent not later than April 8th).—C. B. (such pipes for the distribution of water on the occurrence of fires are not unknown in manufactories; or, at any rate, have been often suggested).—H. H. (there is a school of art in Cannon-street-road, St. George's in the East).—F. W.—W. S. (write to the editor of the *Engineer*).—Capt. K. (next week).—R—s. (will appear).—J. G.—T. D—J. D. P.—A Joiner.—R. L. B.—J. H.—C. B.—C. A. W.—C. J. P.—A. I.—A. T.—F. W. W.—F. R. W.—W. P. B.—W. B.—Wernulph.—An Old Traveller.—W. G. S.—F. D.—T. W.—H. & S.—H. R. C.—J.—H. M.—W. P. G.—A. K.—F. C.—F. D.—F. M—D.—An Old Maker.—The *Builder's* Fire.—J. T. jun.—G. M.

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender; not necessarily for publication.

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